





ViP_{KIT2}

VK2-VGAVFD



User Manual

	<table border="1"><tr><td>WARNING</td></tr><tr><td>RISK OF ELECTRIC SHOCK DO NOT OPEN</td></tr></table>	WARNING	RISK OF ELECTRIC SHOCK DO NOT OPEN	
WARNING				
RISK OF ELECTRIC SHOCK DO NOT OPEN				
<p>WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>				



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.


CE COMPLIANCE STATEMENT

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The information in this manual is believed to be accurate as of the date of publication. The seller is not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

Important Safeguard

<p>1. Read Instructions</p> <p>All the safety and operating instructions should be read before the appliance is operated.</p> <p>2. Retain Instructions</p> <p>The safety and operating instructions should be retained for future reference.</p> <p>3. Cleaning</p> <p>Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.</p> <p>4. Attachments</p> <p>Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.</p> <p>5. Water and/or Moisture</p> <p>Do not use this equipment near water or in contact with water.</p> <p>6. Accessories</p> <p>Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.</p>  <p>This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.</p> <p>7. Power Sources</p> <p>This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.</p> <p>8. Power Cords</p> <p>Operator or installer must remove power and TNT connections before handling the equipment.</p> <p>9. Lightning</p> <p>For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.</p> <p>10. Overloading</p> <p>Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.</p> <p>1. Objects and Liquids</p> <p>Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.</p> <p>12. Servicing</p> <p>Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.</p>	<p>13. Damage requiring Service</p> <p>Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:</p> <p>A. When the power-supply cord or the plug has been damaged. B. If liquid is spilled, or objects have fallen into the equipment. C. If the equipment has been exposed to rain or water. D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation. E. If the equipment has been dropped, or the cabinet damaged. F. When the equipment exhibits a distinct change in performance — this indicates a need for service.</p> <p>14. Replacement Parts</p> <p>When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.</p> <p>15. Safety Check</p> <p>Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.</p> <p>16. Field Installation</p> <p>This installation should be made by a qualified service person and should conform to all local codes.</p> <p>17. Correct Batteries</p> <p>Warning: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.</p> <p>18. Tmra</p> <p>A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.</p> <p>19. Elevated Operating Ambient Temperature</p> <p>If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).</p> <p>20. Reduced Air Flow</p> <p>Installation of the equipment in the rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.</p> <p>21. Mechanical Loading</p> <p>Mounting of the equipment in the rack should be such that a hazardous condition is not caused by uneven mechanical loading.</p> <p>22. Circuit Overloading</p> <p>Consideration should be given to connection of the equipment to supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.</p> <p>23. Reliable Earthing (Grounding)</p> <p>Reliable grounding of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).</p>
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1. Description

This manual applies to the VIP Kit2 Camera – VK2-VGAVFD.

The VK2-VGAVFD camera is a IP VK2-VGAVFD.

The VK2-VGAVFD comes supplied with its own viewing software which allows the user to View, record and configure the camera. Viewing and configuration can also be carried out via a web browser such as Internet Explorer.

The camera can transmit real time full frame rate video in H.264, MJPEG or MPEG4 compression formats

The alarm input and alarm output can be used to connect various third party devices, such as, door sensors and alarm bells.

The built in SD card allows local recording of events.

1.1 Components

The system comes with the following components:



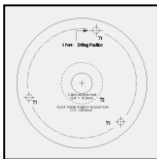
VK2-VGAVFD unit



Installation CD



Installation Guide



Template Sheet



Accessory Kit

Note: Check your package to make sure that you received the complete system, including all components shown above.

1.2 Key Features

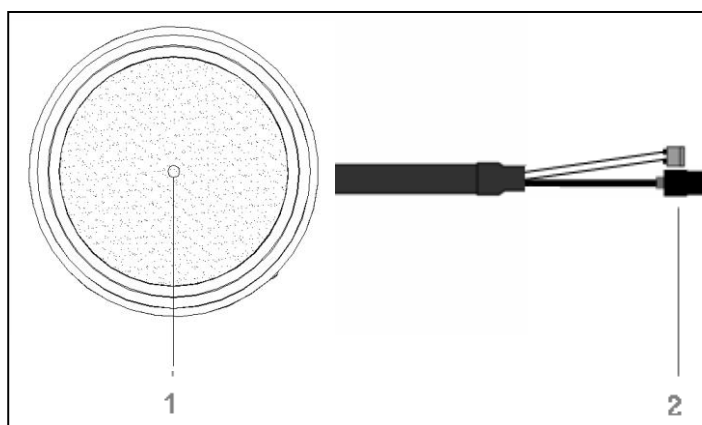
- **Excellent video quality**
The VK2-VGAVFD offers the highly efficient H.264 video compression, which drastically reduces bandwidth and storage requirements without compromising image quality. Motion JPEG is also supported for increased flexibility.
- **Dual streams**
The VK2-VGAVFD can deliver dual video streams simultaneously at full frame rate in all resolutions up to VGA (640 x 480) using Motion JPEG and H.264 (or MPEG-4). This means that several video streams can be configured with different compression formats, resolutions and frame rates for different needs.
- **Image setting adjustment**
The VK2-VGAVFD also enables users to adjust image settings such as contrast, brightness and saturation to improve images before encoding takes place.
- **Intelligent video capabilities**
The VK2-VGAVFD includes intelligent capabilities such as enhanced video motion detection. The encoder's external inputs and outputs can be connected to devices such as sensors and relays, enabling the system to react to alarms and activate lights or open/close doors.
- **Micro-SD Recording support**
The VK2-VGAVFD also supports a micro-SD memory slot for local recording with removable storage Up to 32Gb card.
- **Improved Security**
The VK2-VGAVFD logs all user access, and lists currently connected users. Also, its full frame rate video can be provided over HTTPS.
- **Power over Ethernet**
Support for Power over Ethernet (IEEE802.3af) enables the unit, as well as the camera module that is connected to it, to receive power through the same cable as for data transmission. This makes for easy installation since no power outlet is needed.
- **ONVIF**
This is a global interface standard that makes it easier for end users, integrators, consultants, and manufacturers to take advantage of the possibilities offered by network video technology. ONVIF enables interoperability between different vendor products, increased flexibility, reduced cost, and future-proof systems.

2. Installation

For the operation of the VK2-VGAVFD, it is necessary to connect a network cable for data transmission, power connection from supplied power adapter. Depending on operation methods, it is possible to connect an alarm cable additionally. For its fixation on different locations, please consult with an installer.

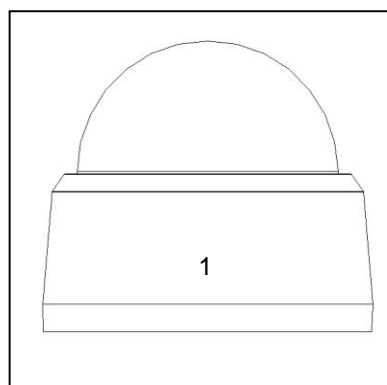
2.1 Over View

- Front View**

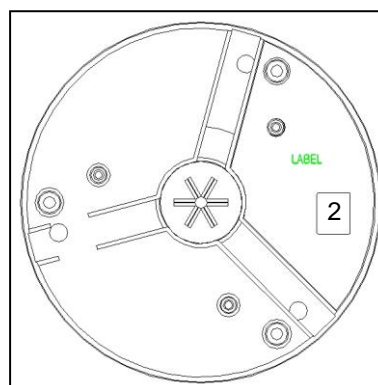


NO	Name	Description
1	Lens	2.8-11mm varifocal lens
2	Extension Cable	Power and Network connection

- Side View**



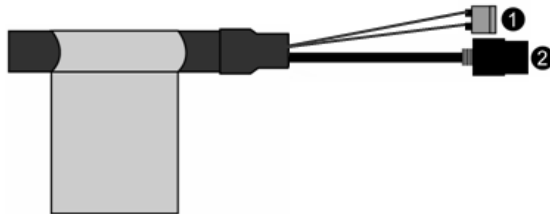
- Bottom View**



NO	Name	Description
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1	Micro SD Slot	Micro SD slot for local recording located inside housing
2	Alarm IO Terminal	AI: Alarm Input, G: Ground, AO: Alarm Output

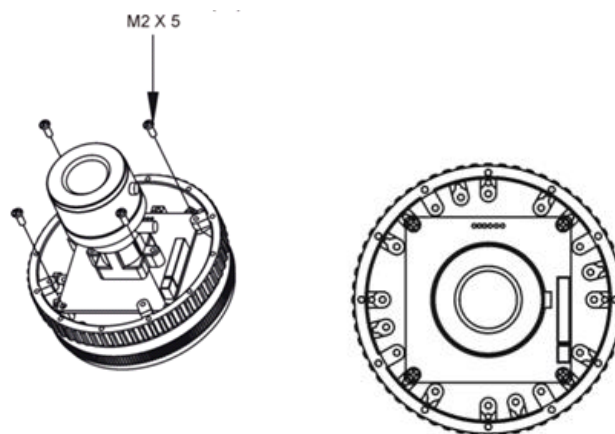
- **Extension Cable**



NO	Wire Color	Description
1	Red: DC12V White: GND	Main Power, 2pin terminal, DC12V, max. 4.0W
2	Black	Ethernet, RJ-45 port compatible with 10/100Mbps PoE. Modular Jack

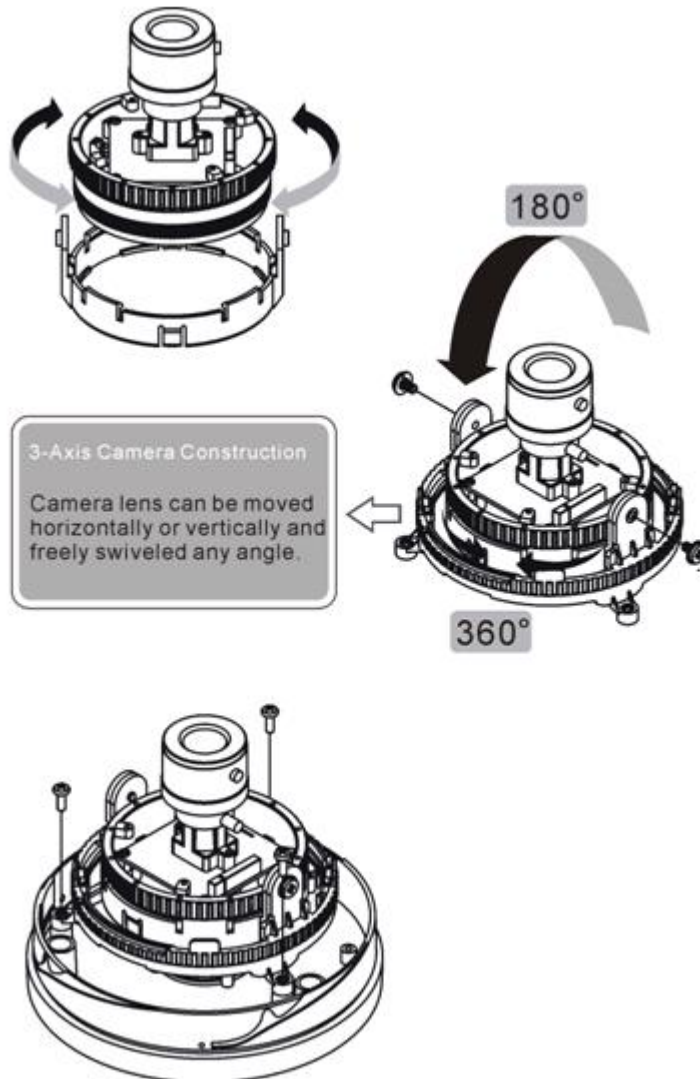
- **Installing & Adjusting Camera Module**

To mount the board camera on the camera mount bracket, place the four board camera supports on the four slot holes near the front and the rear of the camera mount bracket.



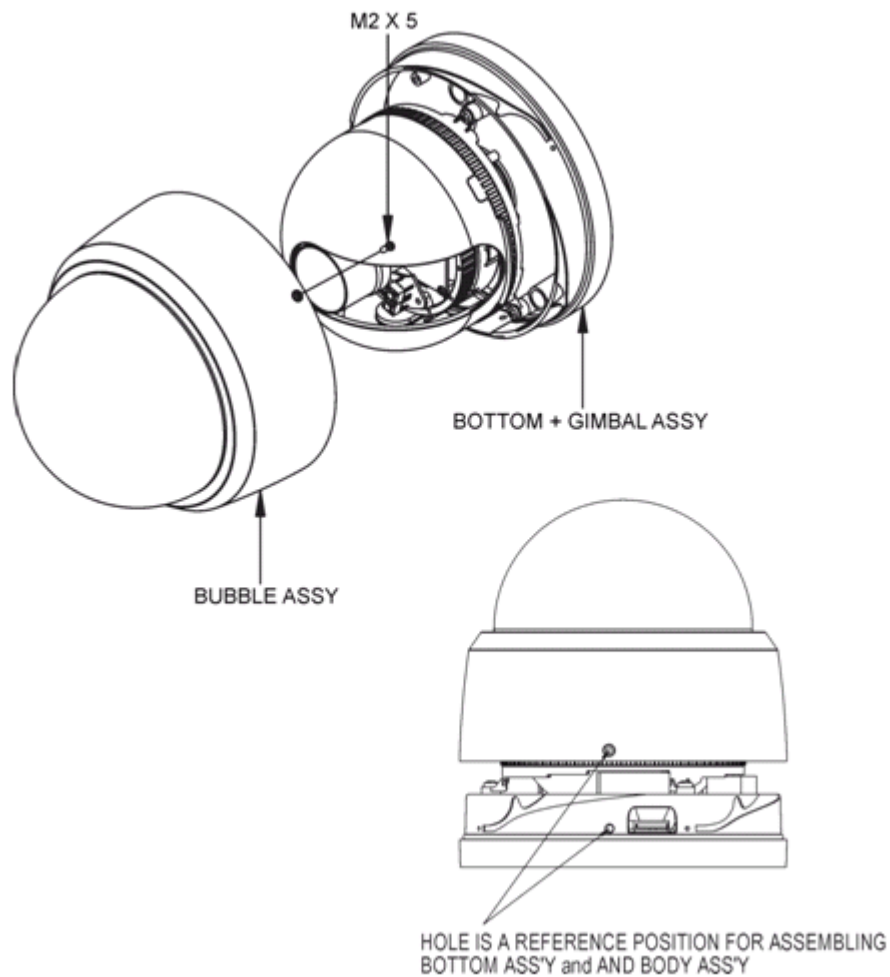
Note: Arrow indicates the top of the camera image.

Use the following drawings to install the camera module to the housing.

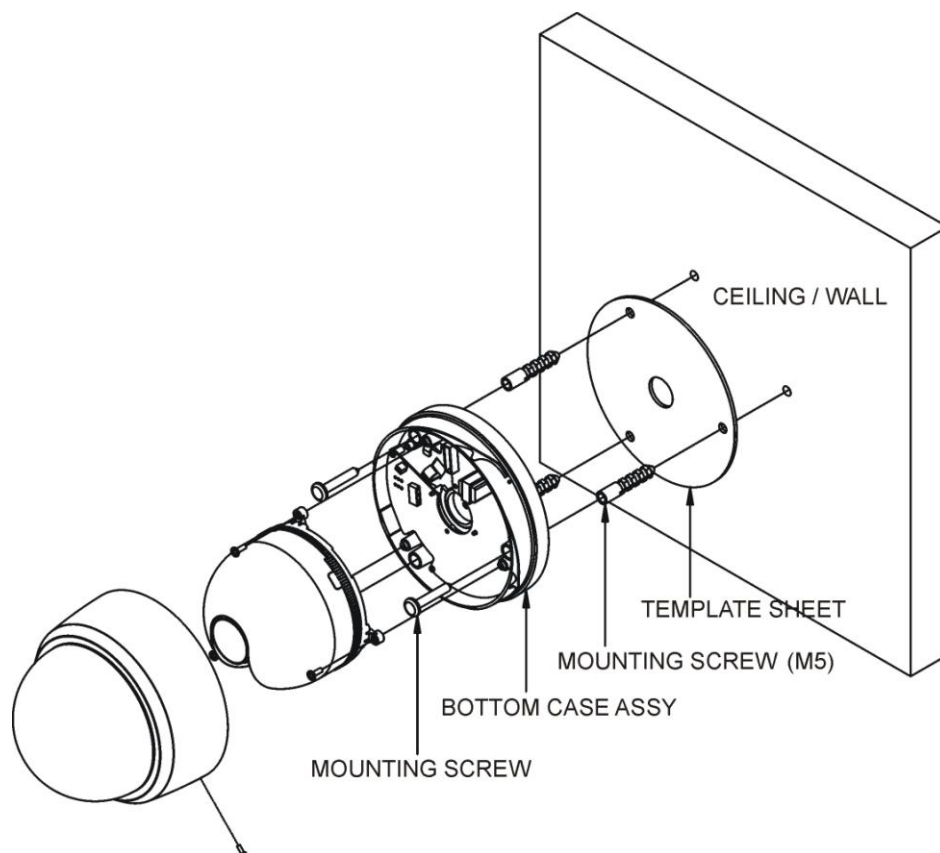


- **Base Installation**

Make mounting holes and cable hole in the place (ceiling) to which this dome. Camera is installed using the Template sheet.



To remove dome cover, turn the dome cover counterclockwise until locators reach end of travel and pull off. To remove the liner place 1st and second fingers either side of the dome window and thumb to the rear of the liner and squeeze gently, while pulling..



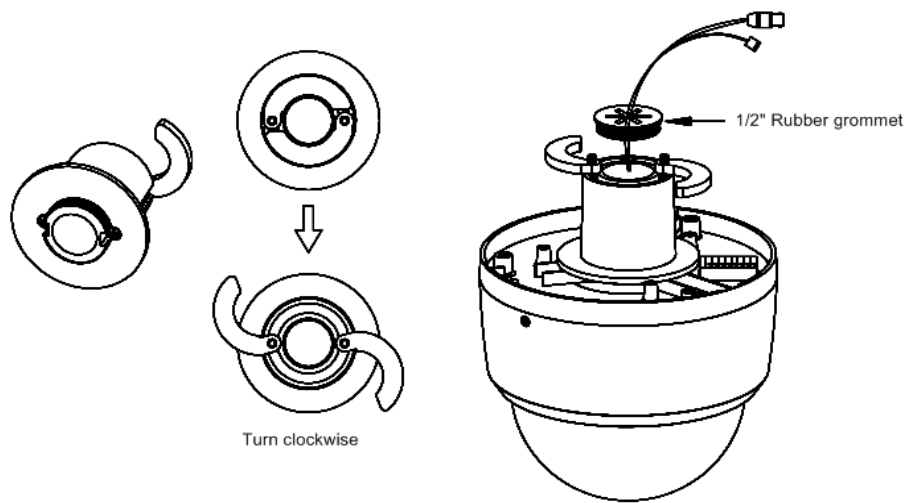
Use the template provided to mark location holes, use mounting screws and plugs suitable for the surface that the camera is being mounted onto.

The assembly of the dome window cover and liner is in reverse order of disassembly. Finally, lock dome window cover with locking screw(M2X4) from the accessory kit.

- **Using the Quick install Adaptor (option)**

Use the optional Quick install Adaptor on wall or ceiling application

1. Install the Adaptor into the mounting surface and use the screws to adjust the position of the two locking arms on the Quick Install Adaptor
2. Push the cables through the opening and 1/2" rubber grommet
3. Make sure the grommet is properly installed on the adaptor to prevent dust ingress



2.2 Connection

- **Connecting to the RJ-45**

Connect a standard RJ-45 cable to the network port of the network dome camera. Generally a cross-over cable is used for directly connection to PC, while a direct cable is used for connection to a hub.

- **Connecting Alarms**

AI(Alarm In) :

You can use external devices to signal the dome camera to react on events. Mechanical or electrical switches can be wired to the AI (Alarm In) and G (Ground) connectors.

G(Ground) :

Connect the ground side of the alarm input and/or alarm output to the G (Ground) connector.

AO(Alarm Out) :

The dome camera can activate external devices such as buzzers or lights. Connect the device to the AO (Alarm Out) and G (Ground) connectors.

- **Connecting the Power**

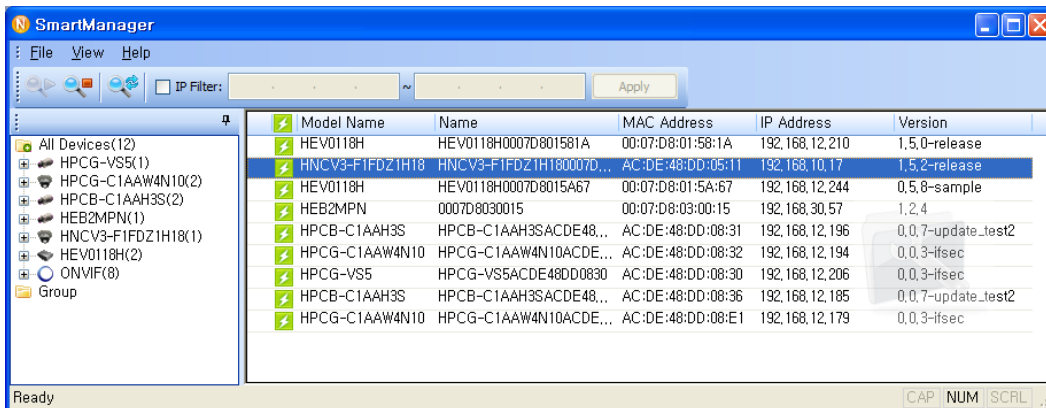
Connect the power of DC12V 0.35A for the dome camera. Connect the positive(+) pole to the '+' position and the negative(-) pole to the '-' position.

Use certified / Listed Class 2 power source only.

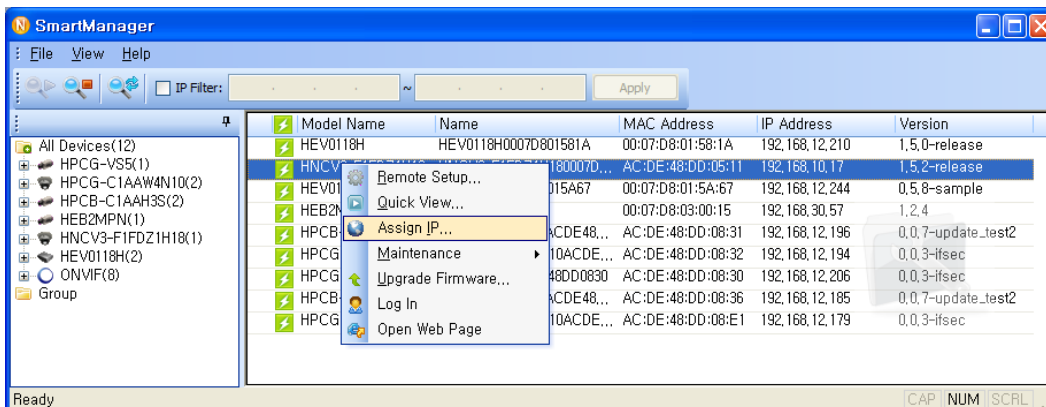
2.3 Network Connection and IP assignment

The VK2-VGAVFD supports the operation through the network. When a camera is first connected to the network it has no IP address. So, it is necessary to allocate an IP address to the device with the "Smart Manager" utility on the CD.

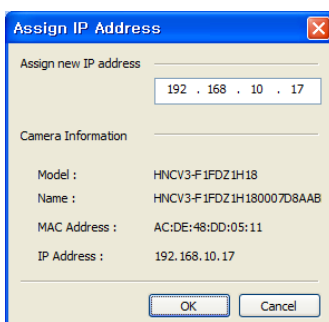
1. Connect the VK2-VGAVFD / device to the network and power up.
2. Start SmartManager utility (All programs > NautilusClient16 > SmartManager), the main window will be displayed, after a short while any network devices connected to the network will be displayed in the list.



3. Select the camera on the list and click right button of the mouse. You can see the pop-up menu as below.



4. Select Assign IP. You can see a Assign IP window. Enter the required IP address.



3. Operation

The VK2-VGAVFD can be used with Windows operating system and browsers. The recommended browsers are Internet Explorer, Safari, Firefox, Opera and Google Chrome.

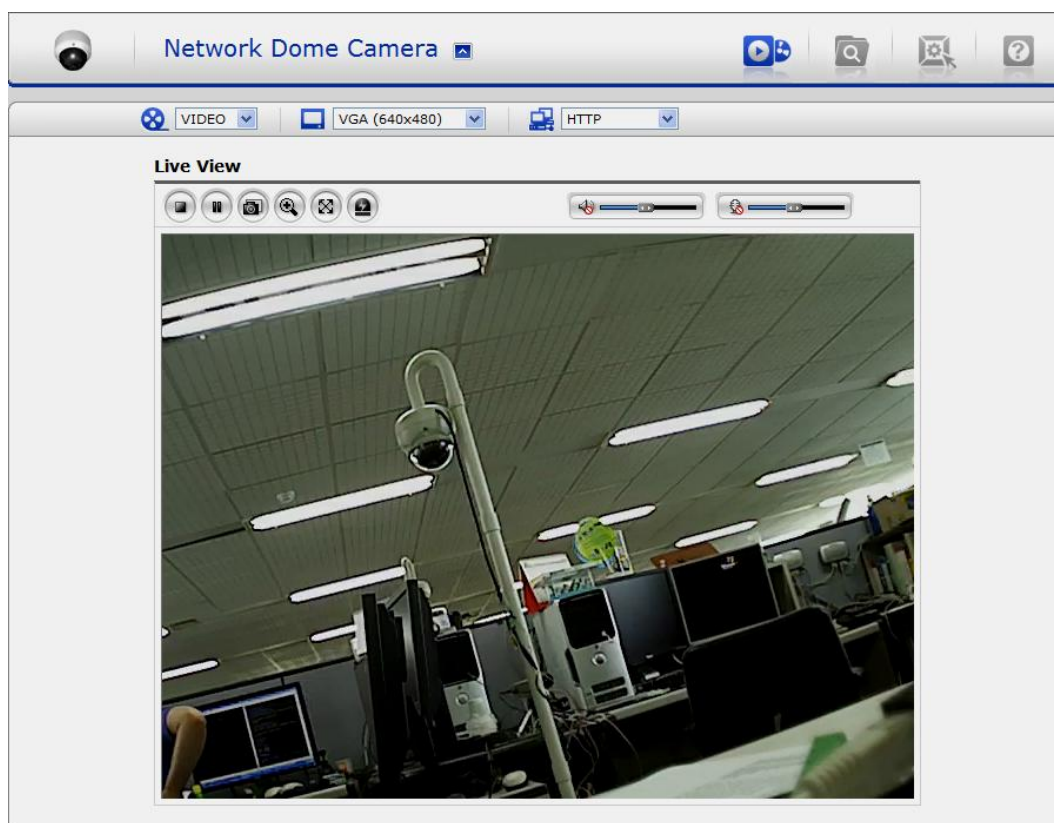
Note: To view streaming video in Microsoft Internet Explorer, set your browser to allow ActiveX controls.

3.1 Access from a browser

1. Start a browser (Internet Explorer).
2. Enter the IP address or host name of the VK2-VGAVFD in the Location/Address field of your browser.
3. You can see a starting page. Click Live View, Playback or Setup to enter web page.



4. The encoder's **Live View** page appears in your browser.



3.2. Access from the internet

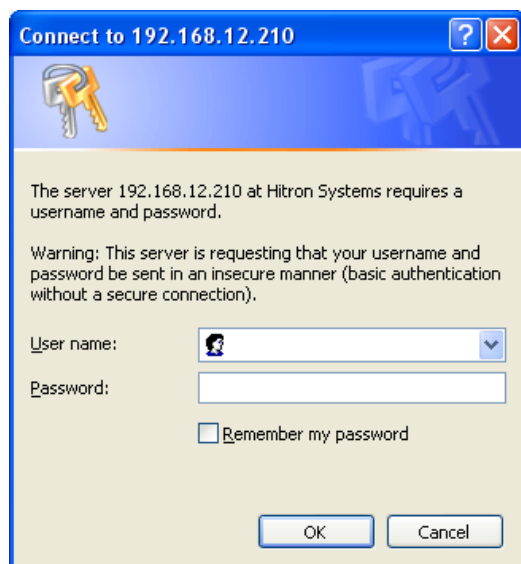
Access from the internet once connected, the VK2-VGAVFD is accessible on your local network (LAN). To access the video encoder from the Internet you must configure your broadband router to allow incoming data traffic to the video encoder. To do this, enable the NAT-traversal feature, which will attempt to automatically configure the router to allow access to the video encoder. This is enabled from Setup > System > Network > NAT.

For more information, please see NAT traversal (port mapping) for IPv4, on page 54.

3.3 Setting the admin password over a secure connection

To gain access to the product, the password for the default administrator user must be set. This is done in the "Admin Password" dialog, which is displayed when the VK2-VGAVFD is accessed for the setup at the first time. Enter your admin name and password, set by the administrator.

Note: The default administrator username and password is "admin". If the password is lost, the VK2-VGAVFD must be reset to the factory default settings. See "3.8 Resetting to the Factory Default Settings" for more details.



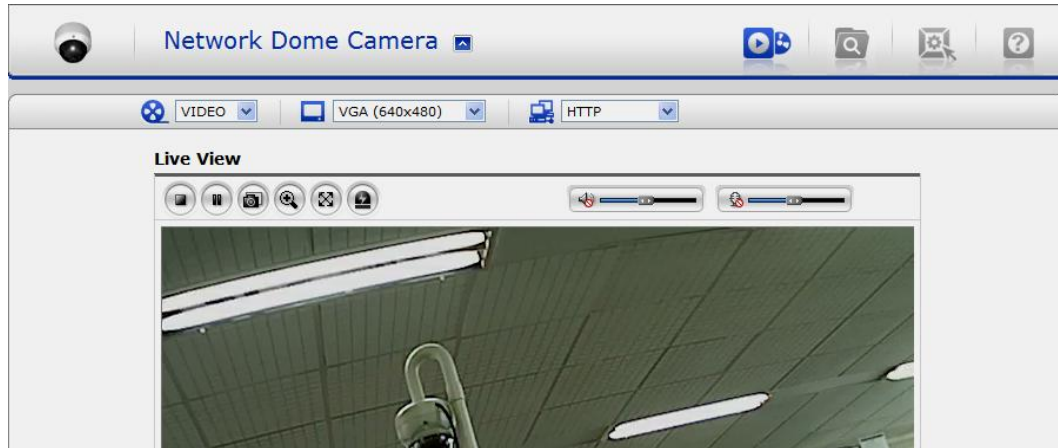
To prevent network eavesdropping when setting the admin password, this can be done via an encrypted HTTPS connection, which requires an HTTPS certificate (see note below).

To set the password via a standard HTTP connection, enter it directly in the first dialog shown below.
To set the password via an encrypted HTTPS connection, see "3.5.4 System > Security > HTTPS".





Note: HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt the traffic between web browsers and servers. The HTTPS certificate controls the encrypted exchange of information.


3.4 Live View Page


The live view page comes in eight screen modes like 640x480, 320x240, and 160x120. Users are allowed to select the most suitable one out of those modes. Please, adjust the mode in accordance with your PC specifications and monitoring purposes.




1) General controls

 Live View Page  Search & Playback Page  Setup Page  Help Page










 VIDEO ▼ The video drop-down list allows you to select a customized or pre-programmed video stream on the live view page. Stream profiles are configured under Setup > Basic Configuration > Video & Image. See Basic Configuration, on page 26 for more information.

 4CIF (704x480) ▼ The resolution drop-down list allows you to select the most suitable one out of video resolutions to be displayed on live view page.

 HTTP ▼ The protocol drop-down list allows you to select which combination of protocols and methods to use depends on your viewing requirements, and on the properties of your network.

2) Control toolbar

The live viewer toolbar is available in the web browser page only. It displays the following buttons:

-  The Stop button stops the video stream being played. Pressing the key again toggles the start and stop. The Start button connects to the VK2-VGAVFD or start playing a video stream.
-  The Pause button pause the video stream being played.
-  The Snapshot button takes a snapshot of the current image. The location where the image is saved can be specified.
-  The digital zoom activates a zoom-in or zoom-out function for video image on the live screen.
-  The Full Screen button causes the video image to fill the entire screen area. No other windows will be visible. Press the 'Esc' button on the computer keyboard to cancel full screen view.
-  The Manual Trigger button activates a pop-up window to manually start or stop the event.
-  Use this scale to control the volume of the speakers.
-  Use this scale to control the volume of the microphone.
-  Use this scale to control the volume of the speakers and microphones.

3) Video Streams

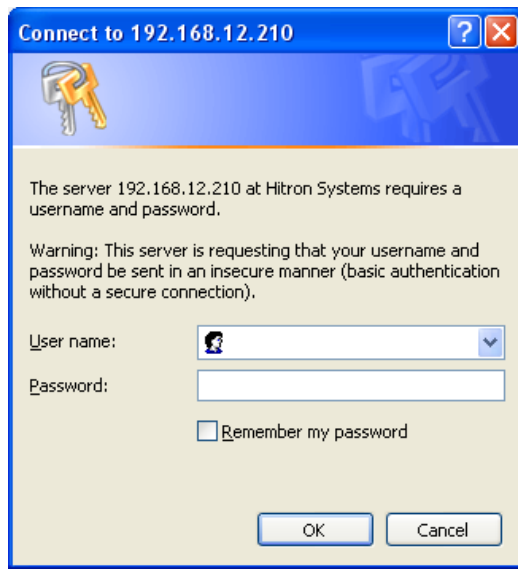
The VK2-VGAVFD provides several images and video stream formats. Your requirements and the properties of your network will determine the type you use.

The Live View page in the VK2-VGAVFD provides access to H.264, MPEG-4 and Motion JPEG video streams, and to the list of available video streams. Other applications and clients can also access these video streams/images directly, without going via the Live View page.

3.5 Camera setup menu

This section describes how to configure the VK2-VGAVFD, and is intended for product Administrators, who have unrestricted access to all the Setup tools; and Operators, who have access to the settings for Basic, Live View, Video & Image, Audio, Event, and System Configuration.

You can configure the VK2-VGAVFD by clicking Setup in the top right-hand corner of the Live View page. Click on this page to access the online help that explains the setup tools



When accessing the VK2-VGAVFD for the first time, the "Admin Password" dialog appears. Enter your admin name and password, set by the administrator.

Note: If the password is lost, the VK2-VGAVFD must be reset to the factory default settings. See "[3.9 Resetting to the Factory Default Settings](#)"

3.5.1 Basic Configuration

1) Users

User access control is enabled by default. An administrator can set up other users, by giving these user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page, as described below:



The **user list** displays the authorized users and user groups (levels):

User Group	Authority
Guest	Provides the lowest level of access, which only allows access to the Live View page.
Operator	An operator can view the Live View page, create and modify events, and adjust certain other settings. Operators have no access to System Options.
Administrator	An administrator has unrestricted access to the Setup tools and can determine the registration of all other users.

- **Enable anonymous viewer login:** Check the box to use the webcasting features. Refer to "3.6.2 Video & Image" for more details.

2) Network

The VK2-VGAVFD support both IP version 4 and IP version 6. Both versions may be enabled simultaneously, and at least one version must always be enabled. When using IPv4, the IP address for the video encoder can be set automatically via DHCP, or a static IP address can be set manually. If IPv6 is enabled, the video encoders receive an IP address according to the configuration in the network router. There is also the option of using the Internet Dynamic DNS Service. For more information on setting the Network, please see Setup> System>Security>Network.

The screenshot shows the 'Network Dome Camera' web interface. The left sidebar contains a 'Basic Configuration' menu with sub-items: 'Users', 'Network' (selected), 'Video & Image', and 'Date & Time'. Below this are buttons for 'Video & Image', 'Event', 'System', and 'About'. The main content area is titled 'Network' and contains an 'IP Address Configuration' section. It has two radio buttons: 'Obtain IP address via DHCP' (unselected) and 'Use the following IP address :' (selected). Below the radio buttons are three input fields: 'IP address' (192 . 168 . 12 . 210), 'Subnet mask' (255 . 255 . 255 . 0), and 'Default router' (192 . 168 . 12 . 20). At the bottom right of the configuration area are 'Save' and 'Reset' buttons. A large gear icon is visible in the background of the main content area.

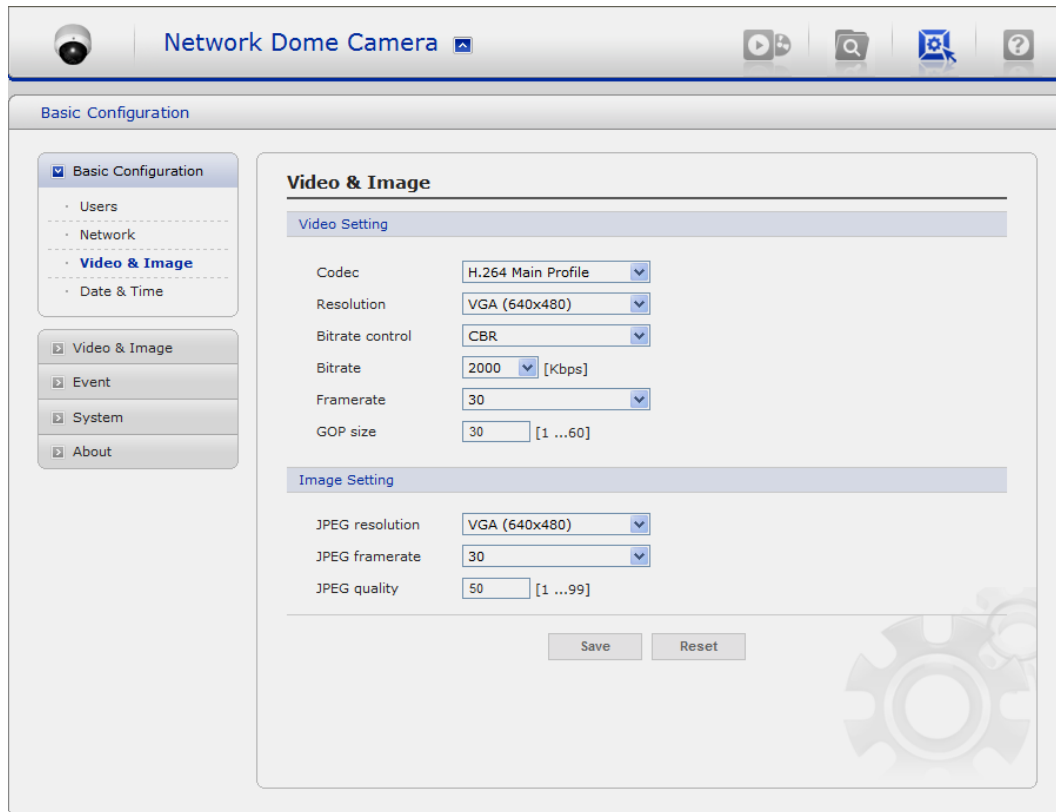
- **Obtain IP address via DHCP** - Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.
- **Use the following IP address** - To use a static IP address for the VK2-VGAVFD, check the radio button and then make the following settings:
 - **IP address:** Specify a unique IP address for your VK2-VGAVFD.
 - **Subnet mask:** Specify the mask for the subnet the VK2-VGAVFD is located on.
 - **Default router:** Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

Notes:

1. DHCP should only be enabled if using dynamic IP address notification, or if your DHCP server can update a DNS server, which then allows you to access the VK2-VGAVFD by name (host name). If DHCP is enabled and you cannot access the unit, you may have to reset it to the factory default settings and then perform the installation again.

2. The ARP/Ping service is automatically disabled two minutes after the unit is started, or as soon as an IP address is set.
3. Pinging the unit is still possible when this service is disabled.

3) Video & Image



- **Video Setting**

- **Codec:**

The codec settings are separated into MPEG4 and H.264.

H.264 is also known as MPEG-4 Part 10. This is the new generation compression standard for digital video. This function offers higher video resolution than Motion JPEG or MPEG-4 at the same bit rate and bandwidth, or the same quality video at a lower bit rate.

- **Profile:**

There are 4 pre-programmed stream profiles available for quick set-up.

Choose the form of video encoding you wish to use from the drop-down list:

- * **H.264 MP(Main Profile):**

Primarily for low-cost applications that requires additional error robustness, this profile is used rarely in videoconferencing and mobile applications, it does add additional error resilience tools to the Constrained Baseline Profile. The importance of this profile is fading after the Constrained Baseline Profile has been defined.

- * **H.264 BP(Base Profile):**

Originally intended as the mainstream consumer profile for broadcast and storage applications, the importance of this profile faded when the High profile was developed for those applications.

* **MPEG4 SP(Simple Profile):**

Mostly aimed for use in situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth, device size etc.

* **MPEG4 ASP(Advanced Simple Profile):**

Its notable technical features relative to the Simple Profile, which is roughly similar to H.263, including "MPEG"-style quantization, interlaced video, B pictures (also known as B Frames), Quarter Pixel motion compensation (Qpel), Global motion compensation (GMC).

- **Resolution:**

It enables users to determine a basic screen size when having an access through the Web Browser or PC program. The screen size control comes in seven modes like VGA(640x480), QVGA(320x240), and QQVGA(160x120). Users can reset the selected screen size anytime while monitoring the screen on a real-time basis.

- **Bitrate control:**

Limiting the maximum bit rate helps control the bandwidth used by the H.264 or MPEG-4 video stream. Leaving the Maximum bit rate as unlimited maintains consistently good image quality but increases bandwidth usage when there is more activity in the image. Limiting the bit rate to a defined value prevents excessive bandwidth usage, but images are lost when the limit is exceeded.

Note that the maximum bit rate can be used for both variable and constant bit rates.

The bit rate can be set as Variable Bit Rate (VBR) or Constant Bit Rate (CBR). VBR adjusts the bit rate according to the image complexity, using up bandwidth for increased activity in the image, and less for lower activity in the monitored area.

CBR allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. As the bit rate would usually need to increase for increased image activity, but in this case cannot, the frame rate and image quality are affected negatively. To partly compensate for this, it is possible to prioritize either the frame rate or the image quality whenever the bit rate needs to be increased. Not setting a priority means the frame rate and image quality are equally affected.

- **Compression:**

When it is necessary to adjust a smooth transmission status according to network situations, users can increase the compressibility to carry out the network transmission stably. On the other hand, when it is necessary to maintain a detailed monitoring screen by enhancing the image quality, users can do so by decreasing the compressibility. In ease case, please adjust this function according to the network status and monitoring purposes. The default is 2000(Kbps).

- **Frame rate:**

Upon the real-time play, users should select a frame refresh rate per second. If the rate is high, the image will become smooth. On the other hand, if the rate is low, the image will not be natural but it can reduce a network load.

- **GOP size:**

Select the GOP(Group of Picture) size. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance. For the details of GOP setting, please contact the service center.

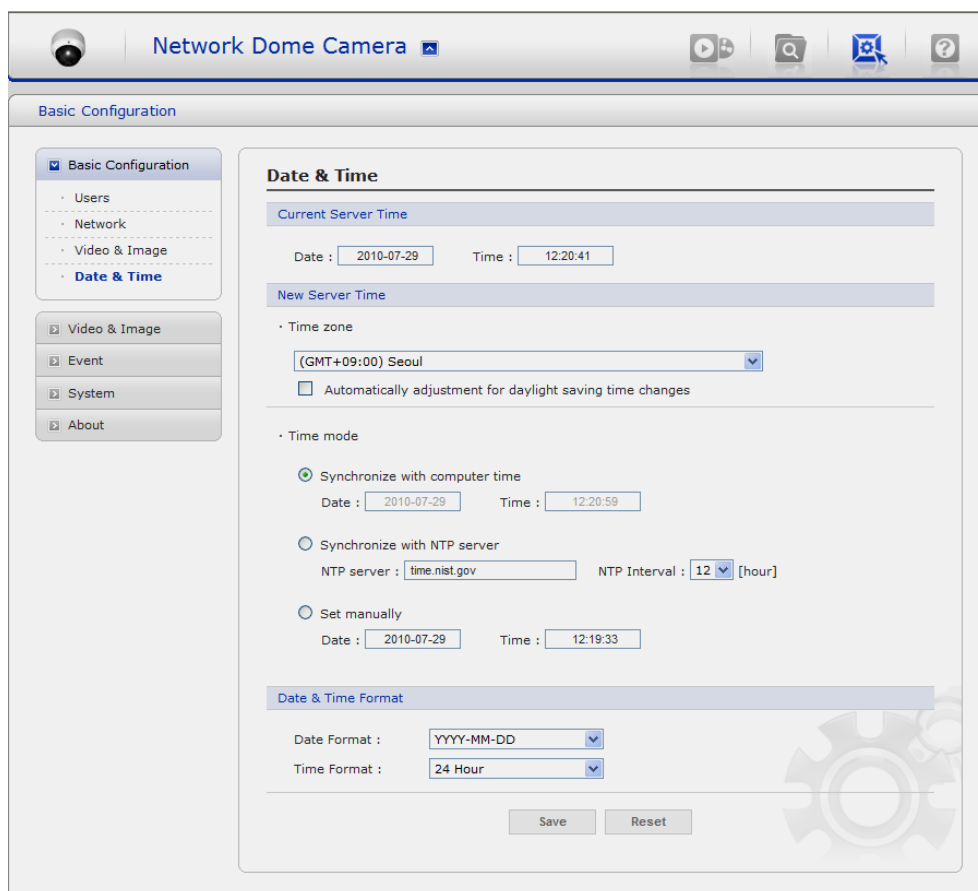
- **Image Setting**

Sometimes the image size is large due to low light or complex scenery. Adjusting the frame rate and quality helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Limiting the frame rate and quality optimizes bandwidth and storage usage, but may give poor image quality. To prevent increased bandwidth and storage usage, the Resolution, Frame rate, and Frame Quality should be set to an optimal value.

- **JPEG resolution:**
Same as the video settings.
- **JPEG frame rate:**
Same as the video settings.
- **JPEG quality:**
Select the picture quality. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance.

When satisfied with the settings, click **Save**, or click **Reset** to revert to previously saved settings.

4) Date & Time



The screenshot shows the 'Basic Configuration' window for a 'Network Dome Camera'. The left sidebar contains a tree view with 'Basic Configuration' selected, which includes 'Users', 'Network', 'Video & Image', and 'Date & Time'. Below this are buttons for 'Video & Image', 'Event', 'System', and 'About'. The main content area is titled 'Date & Time' and contains several sections:

- Current Server Time:** Displays 'Date : 2010-07-29' and 'Time : 12:20:41'.
- New Server Time:**
 - Time zone:** A dropdown menu is set to '(GMT+09:00) Seoul'. Below it is an unchecked checkbox for 'Automatically adjustment for daylight saving time changes'.
 - Time mode:** Three radio buttons are present:
 - Synchronize with computer time:** Selected. Shows 'Date : 2010-07-29' and 'Time : 12:20:59'.
 - Synchronize with NTP server:** Unselected. Shows 'NTP server : time.nist.gov' and 'NTP Interval : 12 [hour]'.
 - Set manually:** Unselected. Shows 'Date : 2010-07-29' and 'Time : 12:19:33'.
- Date & Time Format:**
 - Date Format :** A dropdown menu set to 'YYYY-MM-DD'.
 - Time Format :** A dropdown menu set to '24 Hour'.

At the bottom right of the configuration area are 'Save' and 'Reset' buttons.

- **Current Server Time**

It displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

- **New Server Time**

Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight savings time, select the "Automatically adjustment for daylight saving time changes".

From the **Time Mode** section, select the preferred method to use for setting the time:

- **Synchronize with computer time:** sets the time from the clock on your computer.
- **Synchronize with NTP Server:** the video encoder will obtain the time from an NTP server every 60 minutes.
- **Set manually:** this option allows you to manually set the time and date.

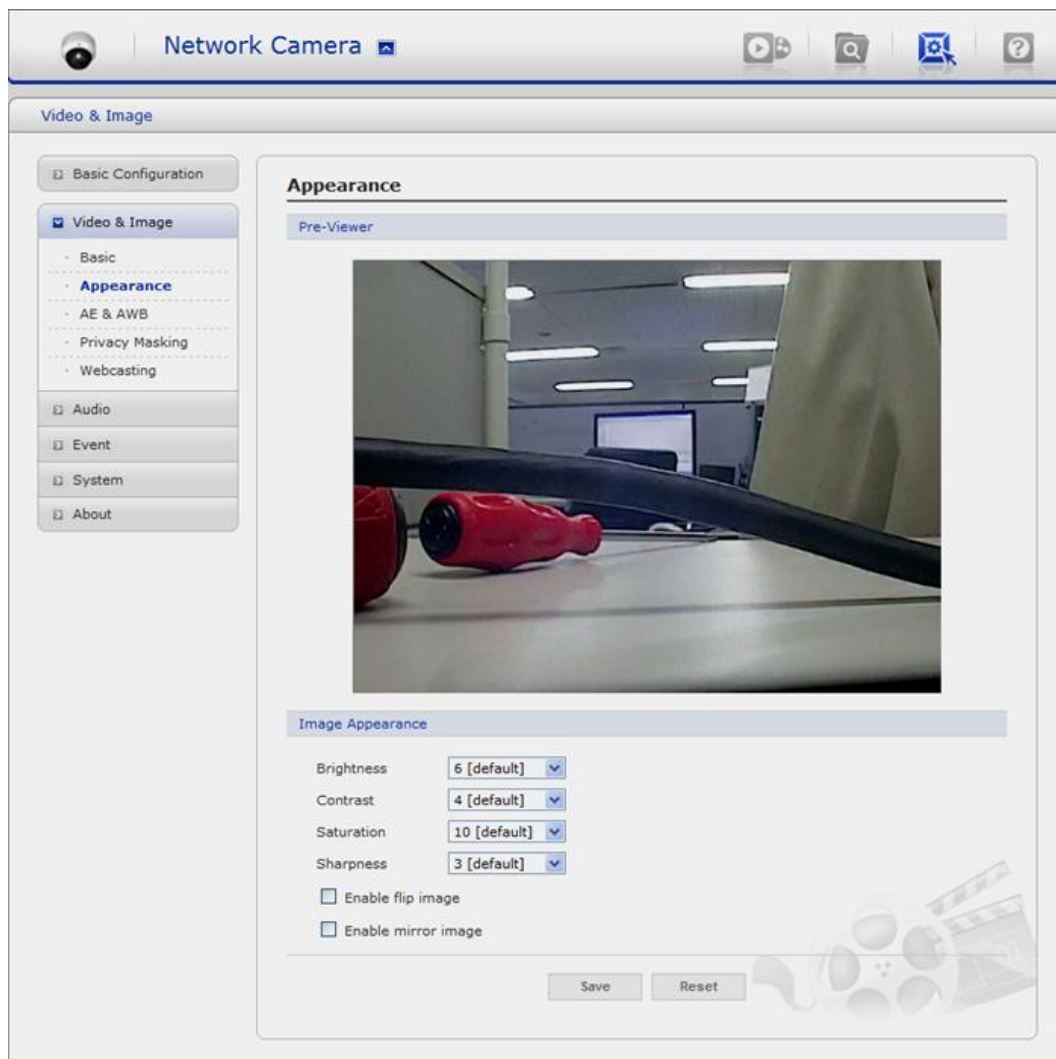
3.5.2 Video & Image

▼ Basic

The screenshot shows the 'Network Dome Camera' configuration web interface. The top navigation bar includes a camera icon, the title 'Network Dome Camera', and several utility icons (play, search, settings, help). The left sidebar contains a menu with 'Basic Configuration' (selected), 'Video & Image' (expanded), and sub-items: 'Basic' (selected), 'Appearance', 'Privacy Masking', and 'Webcasting'. Below these are 'Event', 'System', and 'About' sections. The main content area is titled 'Video & Image - Basic' and is divided into two sections: 'Video Setting' and 'Image Setting'. The 'Video Setting' section includes fields for Codec (H.264 Main Profile), Resolution (VGA (640x480)), Bitrate control (CBR), Bitrate (2000 Kbps), Framerate (30), and GOP size (30). The 'Image Setting' section includes fields for JPEG resolution (VGA (640x480)), JPEG framerate (30), and JPEG quality (50). At the bottom right of the settings area are 'Save' and 'Reset' buttons. A decorative graphic of a film reel and clapperboard is visible in the bottom right corner of the settings panel.

Refer to "3.6.1 Basic Configuration > Video & Image" for more details.

▼ Appearance

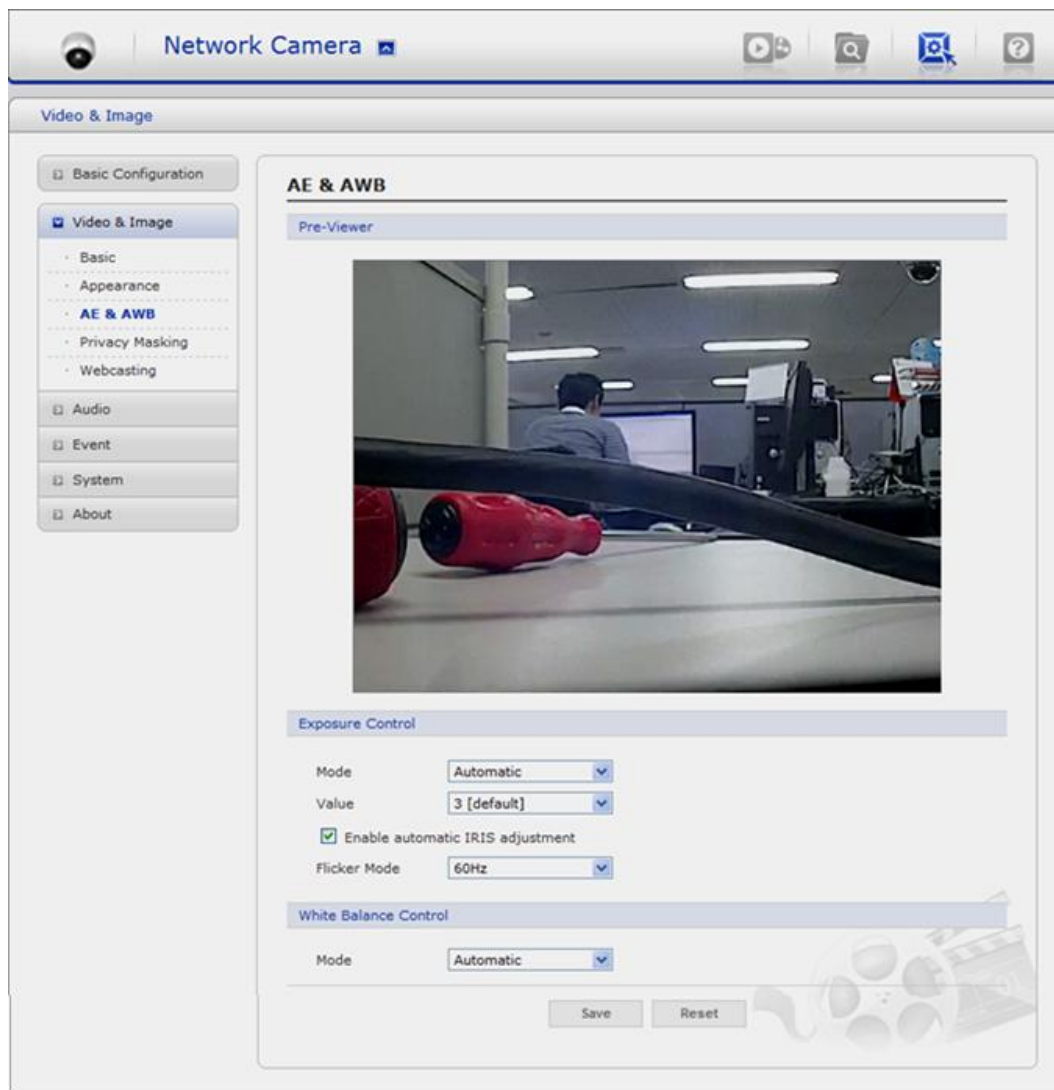


- **Image Appearance**

This page provides access to the advanced image settings for the VK2-VGA VFD.

- **Brightness:** The image brightness can be adjusted in the range 1-10, where a higher value produces a brighter image.
- **Color level:** Select an appropriate level by entering a value in the range 1-10. Lower values mean less color saturation.
- **Saturation:** Adjust the image's contrast by raising or lowering the value in this field.
- **Sharpness:** Controls the amount of sharpening applied to the image. A sharper image might increase image noise especially in low light conditions. A lower setting reduces image noise, but the image would be less sharp.
- **Enable flip image:** Check this checkbox to flip the image.
- **Enable mirror image:** Check this checkbox to mirror the image.

▼ AE & AWB



This page provides access to set the exposure and white balance of the VK2-VGAVFD.

- **Exposure Control**

Configure the exposure settings to suit the image quality requirements in relation to lighting consideration.

- **Mode:** Supports exposure modes to control the amount of light detected by the camera sensor based on settings for light conditions. The default setting is Auto with DC-IRIS.
 - * **Automatic:** Automatically sets the amount of light detected by the DC-IRIS and AGC.
 - * **Hold Current:** Fixes the exposure at its current state.
- **Value:** Select a value in the drop-down list to tune the exposure. The default setting is 3.
- **Enable automatic IRIS adjustment:** This checkbox should always be set to be **checked**, except during focusing, or when using a fixed iris lens.
- **Flicker Mode:** Provides the options for flicker.
 - * **50Hz:** Select at 50 Hz environments.
 - * **60Hz:** Select at 60 Hz environments.

- **White Balance Control**

This adjusts the relative amount of red, green and blue primary colors in the image so that the neutral colors are reproduced correctly. The camera can be set to automatically adjust for the type of light and compensate for its color. Alternatively, the type of light source can be set manually.

From the drop-down list, select the white balance setting suitable for the lighting used for your camera. The available options are:

- **Automatic:** Automatic identification and compensation for the light source color. This can be used in most situations and is the recommended setting.
- **Fixed Indoor:** Fixed color adjustment, ideal for a room with incandescent (a glow) lighting and good for a normal color temperature around 2600K.
- **Fixed Fluorescent 1:** Fixed color adjustment; good for fluorescent lighting with a color temperature around 4000K.
- **Fixed Fluorescent 2:** Fixed color adjustment; good for fluorescent lighting with a color temperature around 5000K.
- **Fixed Outdoor 1:** Fixed color adjustment for sunny, with a color temperature around 6500K.
- **Fixed Outdoor 2:** Fixed color adjustment for cloudy, with a color temperature around 7500K.

▼ Privacy Masking - Basic

The privacy masking function allows you to mask parts of the video image to be transmitted. You can set up to eight privacy masks and the color of privacy masks is black.

Network Dome Camera

Video & Image

- Basic Configuration
- Video & Image**
 - Basic
 - Appearance
 - Privacy Masking**
 - Webcasting
- Event
- System
- About

Privacy Masking

Pre-Viewer

Privacy Masking Setting

☒ Enable privacy masking

ID	Name	Delete
1	Privacy Mask 1	X
2	Privacy Mask 2	X

Save Reset

The privacy masks are configured by Mask windows. Each window can be selected by clicking with the mouse. It is also possible to **resize or delete, or move** the window, by selecting the appropriate window at the mouse menu on the video screen.



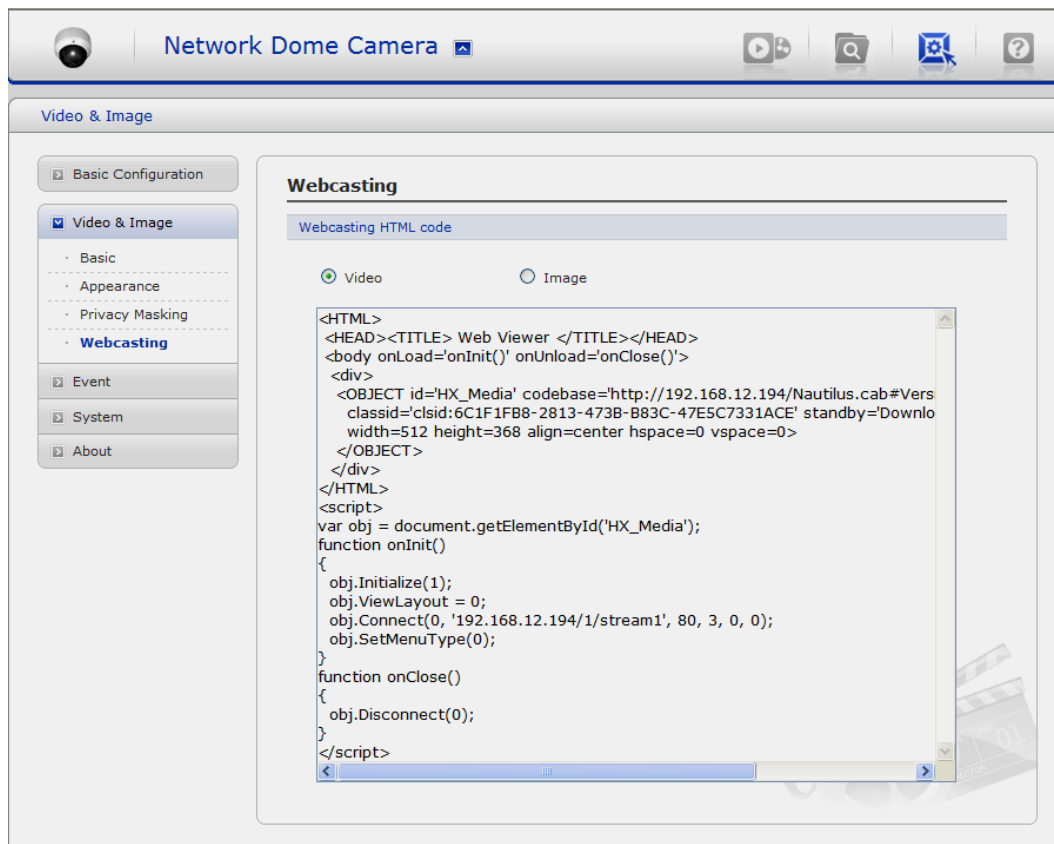
To create a mask window, follow steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Privacy Mask in the mouse menu.
3. Click and drag mouse to designate a mask window area.

You can also modify or delete a motion index. Select an index and then, modify items or delete button. Select "Enable" to activate the privacy masking function.

▼ Webcasting – Channel1

The VK2-VGAVFD can stream live video to a website. Copy the HTML code generated on the screen and paste it in page code of the website you want to display live video.

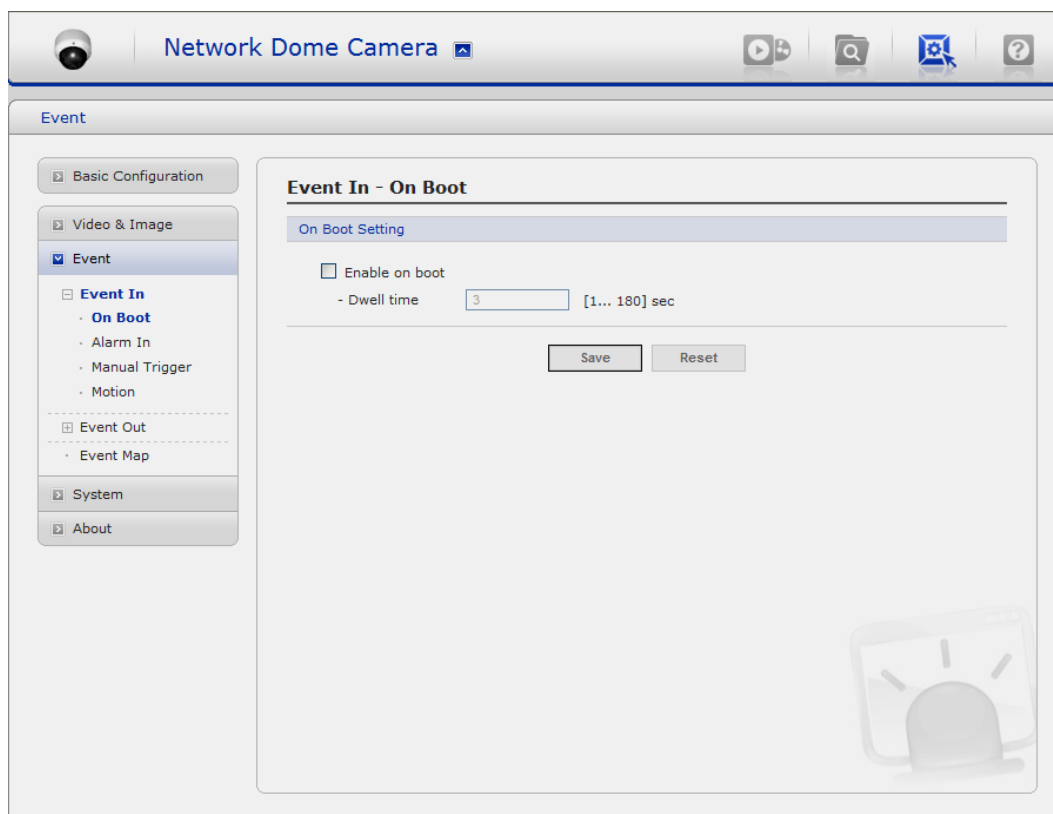


Note: To use webcasting service, the Enable Anonymous viewer login option must be checked. Refer to "3.6.1 Basic Configuration > Users" for more details.

3.5.3 Event

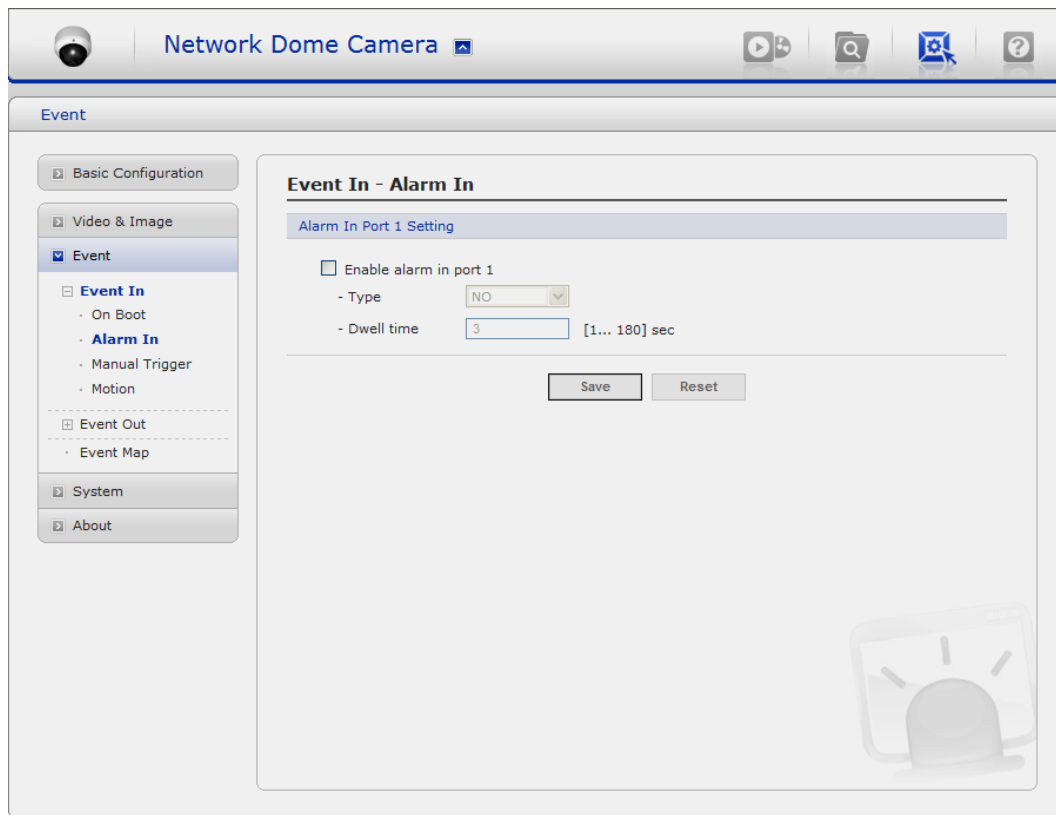
1) Event-In

▼ On Boot



This is used to trigger the event every time the Network Transmitter is started. Select "Enable" to activate the motion event.

▼ Alarm In

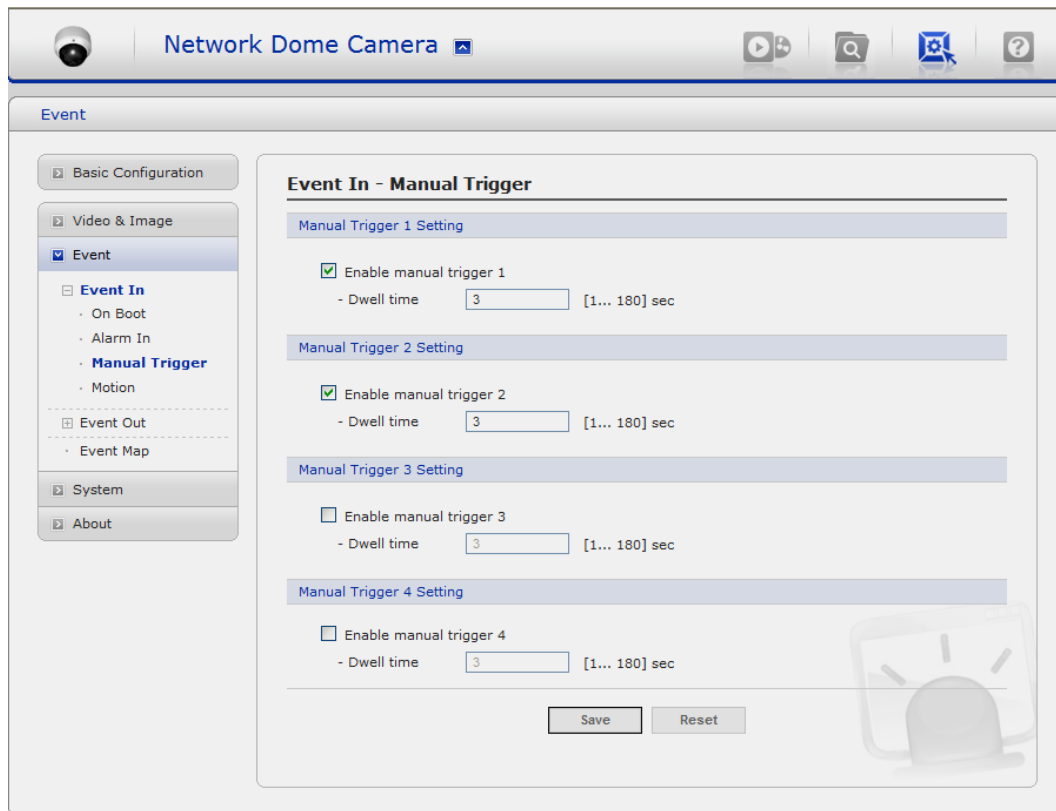


The screenshot shows the 'Network Dome Camera' web interface. The top navigation bar includes a camera icon, the title 'Network Dome Camera', and several utility icons (play, search, settings, help). The left sidebar contains a menu with 'Event' selected, which is expanded to show 'Event In' (with sub-items 'On Boot', 'Alarm In', 'Manual Trigger', 'Motion'), 'Event Out' (with 'Event Map'), 'System', and 'About'. The main content area is titled 'Event In - Alarm In' and contains the 'Alarm In Port 1 Setting' section. This section includes a checkbox for 'Enable alarm in port 1', a 'Type' dropdown menu currently set to 'NO', and a 'Dwell time' input field set to '3' with a range of '[1... 180] sec'. 'Save' and 'Reset' buttons are located below the settings. A faint alarm bell icon is visible in the bottom right corner of the main area.

Select "Enable" to activate the alarm event. The VK2-VGAVFD support 1 alarm input ports.

- **Type:** Choose the type of alarm you wish to use from the drop-down list.
- **Dwell Time:** Set the dwell time an event lasts for the specified dwell time from the point of detection of an alarm input.

▼ Manual Trigger



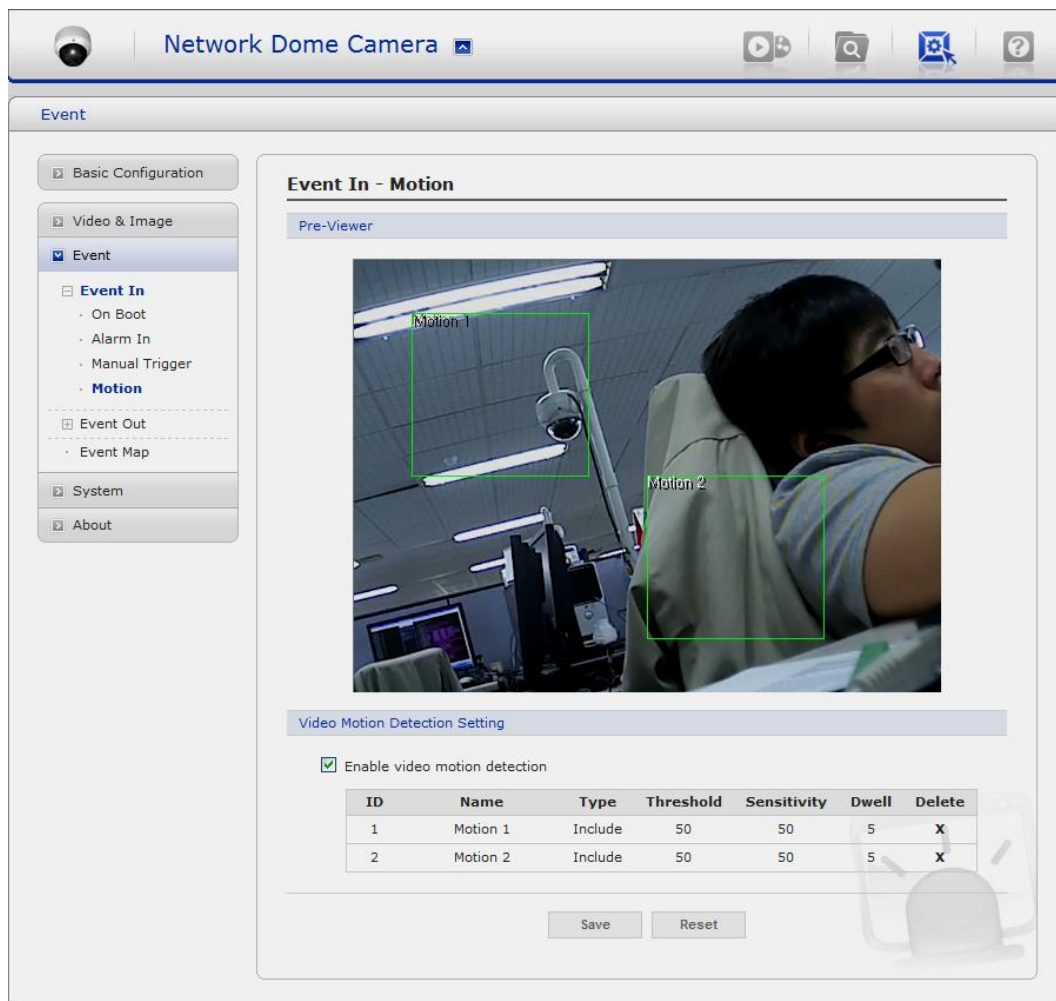
The screenshot displays the 'Network Dome Camera' configuration web interface. The top navigation bar includes a camera icon, the title 'Network Dome Camera', and several utility icons (play, search, settings, help). The left sidebar contains a menu with 'Event' selected, which is further expanded to show 'Event In', 'Event Out', and 'Event Map'. Under 'Event In', the 'Manual Trigger' option is highlighted. The main content area is titled 'Event In - Manual Trigger' and contains four sections for manual trigger settings:

- Manual Trigger 1 Setting:** ☒ Enable manual trigger 1. Dwell time: 3 [1... 180] sec.
- Manual Trigger 2 Setting:** ☒ Enable manual trigger 2. Dwell time: 3 [1... 180] sec.
- Manual Trigger 3 Setting:** ☐ Enable manual trigger 3. Dwell time: 3 [1... 180] sec.
- Manual Trigger 4 Setting:** ☐ Enable manual trigger 4. Dwell time: 3 [1... 180] sec.

At the bottom of the settings area are 'Save' and 'Reset' buttons. A faint watermark of a dome camera is visible in the bottom right corner of the configuration area.

This option makes use of the manual trigger button provided on the live view page, which are used to start or stop the event type manually. Alternatively the event can be triggered via the product's API (Application Programming Interface).

▼ Motion

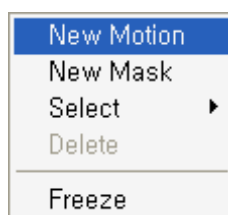


Motion detection is used to generate an alarm whenever movement occurs (or stops) in the video image. A total of 8 Motion and/or Mask windows can be created and configured.

Motion is detected in defined **Motion** windows, which are placed in the video image to target specific areas. Movement in the areas outside the motion windows will be ignored. If part of a motion window needs to be masked, this can be configured in a **Mask** window.

- **Pre-Viewer**

Motion detection windows are configured by Motion or Mask windows. Each window can be selected by clicking with the mouse. It is also possible to **resize or delete, or move** the window, by selecting the appropriate window at the mouse menu on the video screen.



To create a motion or mask window, follow steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Motion (or Mask) Window in the mouse menu.
3. Click and drag mouse to designate a motion area.

- **Motion Detection Setting**

The behavior for each window is defined by adjusting the Threshold and Sensitivity, as described below.

A motion index is a set of parameters describing Window Name, Type, Threshold, Sensitivity, and Dwell Time. Window Types is one of Motion and Mask windows.

- **Threshold:** Sets up the sensitivity for the motion detection.
- **Sensitivity:** Sets up the sensitivity for the motion detection.
- **Dwell Time:** Set the hold time an event lasts for the specified hold time from the point of detection of a motion.

You can also modify or delete a motion index. Select an index and then, click the Modify or Delete button.

Select "Enable" to activate the motion window.

2) Event-Out

▼ SMTP(E-Mail)

Network Dome Camera

Event

Basic Configuration

Video & Image

Event

Event In

Event Out

SMTP(E-Mail)

FTP & JPEG

HTTP Server

Alarm Out

Record

Event Map

System

About

Event Out - SMTP(E-Mail)

SMTP(E-Mail) Setting

☐ Enable SMTP

- Sender

- Interval [1... 86400] sec

- Aggregate events [1... 100]

☐ Use mail server

- Mail server

- Port

☐ Enable use(SMTP) authentication

- User name

- Password

- Login method

SMTP(E-Mail) Receiver

Receiver 1 Receiver 2

Receiver 3 Receiver 4

Receiver 5 Receiver 6

Receiver 7 Receiver 8

SMTP(E-Mail) Test

Receiver

The VK2-VGAVFD can be configured to send event and error email messages via SMTP (Simple Mail Transfer Protocol).

- **SMTP(E-Mail) Setting**

Select "Enable" to activate the SMTP operation.

- **Mail Server/Port:** Enter the host names (or IP addresses) and port numbers for your mail server in the fields provided, to enable the sending of notifications and image email messages from the camera to predefined addresses via SMTP.
- **Sender:** Enter the email address to be used as the sender for all messages sent by the Network Transmitter.
- **Interval:** Represents the frequency of the email notification when an event occurs.
- **Aggregate events:** Shows the maximum number of emails sent within each interval.

If your mail server requires authentication, check the box for Use authentication to log in to this server and enter the necessary information.

- **User Name/Password:** Enter the User Name and Password as provided by your network administrator or ISP (Internet Service Provider).

To ensure that the login procedure is performed as securely as possible when using SMTP authentication, you must define the weakest authentication method allowed.

- **Login Method:** Set the Weakest method allowed to the highest/safest method supported by the mail server. The most secure method is listed in the drop-down list:
Login / Plain

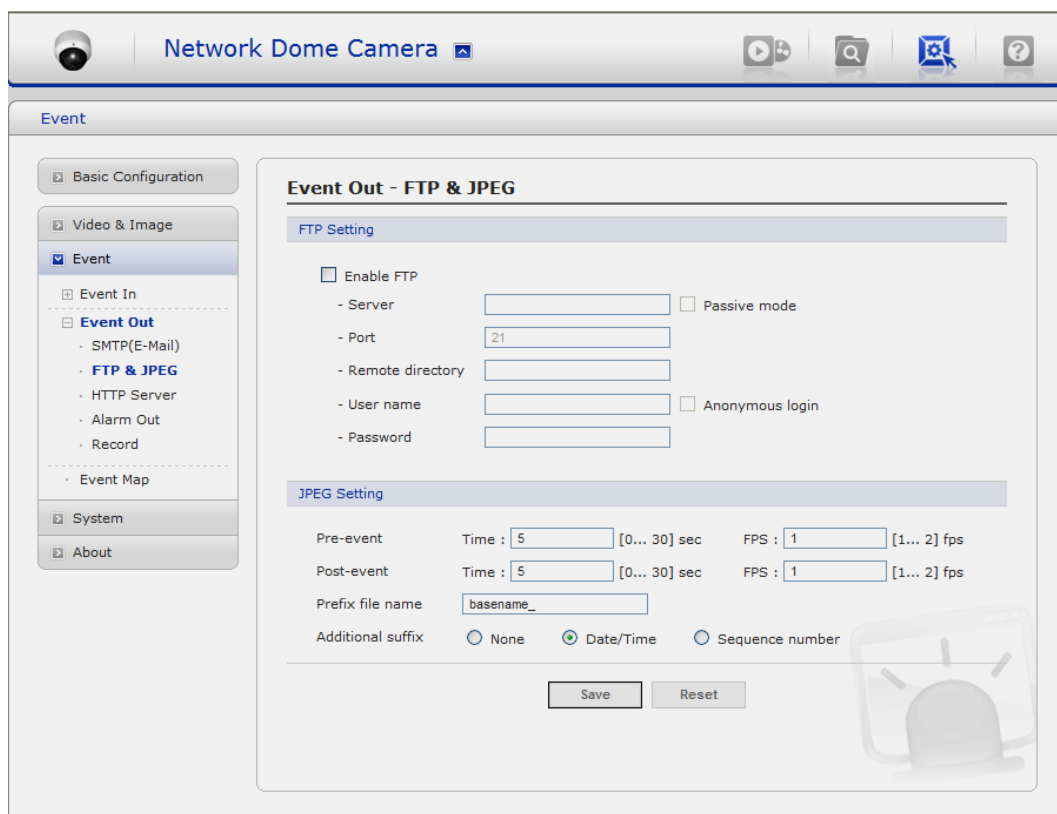
- **SMTP(E-Mail) Receiver**

- **Receiver:** Enter an email address. You can also register the e-mail address of recipients up to 8.

- **SMTP(E-Mail) Test**

- **Receiver:** Enter an email address and click the Test button to test that the mail servers are functioning and that the email address is valid.

▼ FTP & JPEG



The screenshot shows the 'Event Out - FTP & JPEG' configuration window. On the left is a sidebar with a tree view containing 'Basic Configuration', 'Video & Image', 'Event' (selected), 'Event In', 'Event Out' (expanded), 'SMTP(E-Mail)', 'FTP & JPEG' (selected), 'HTTP Server', 'Alarm Out', 'Record', 'Event Map', 'System', and 'About'. The main area is titled 'Event Out - FTP & JPEG' and contains two sections: 'FTP Setting' and 'JPEG Setting'. The 'FTP Setting' section has a checkbox for 'Enable FTP' (unchecked), a 'Server' text field, a 'Port' text field with '21', a 'Remote directory' text field, a 'User name' text field, a 'Password' text field, a 'Passive mode' checkbox (unchecked), and an 'Anonymous login' checkbox (unchecked). The 'JPEG Setting' section has 'Pre-event' and 'Post-event' rows, each with 'Time' (5) and 'FPS' (1) fields. Below these is a 'Prefix file name' text field with 'basename_' and an 'Additional suffix' section with radio buttons for 'None', 'Date/Time' (selected), and 'Sequence number'. At the bottom are 'Save' and 'Reset' buttons. A faint watermark of a dome camera is visible in the bottom right corner.

When the VK2-VGAVFD detects an event, it can record and saves images to an FTP server. Images can be sent as e-mail attachments. Check the box to enable the service.

- **FTP Setting**

- **Server:** Enter the server's IP address or host name. Note that a DNS server must be specified in the TCP/IP network settings if using a host name.
- **Port:** Enter the port number used by the FTP server. The default is 21.
- **Use passive mode:** Under normal circumstances the VK2-VGAVFD simply requests the target FTP server to open the data connection. Checking this box issues a PASV command to the FTP server and establishes a passive FTP connection; whereby the VK2-VGAVFD actively

initiates both the FTP control and data connections to the target server. This is normally desirable if there is a firewall between the camera and the target FTP server.

- **Remote directory:** Specify the path to the directory where the uploaded images will be stored. If this directory does not already exist on the FTP server, there will be an error message when uploading.
- **User name/Password:** Provide your log-in information.

- **JPEG Setting**

- **Pre-event:** A pre-event buffer contains images from the time immediately preceding the event trigger. These are stored internally in the server. This buffer can be very useful when checking to see what happened to cause the event trigger.
Check the box to enable the pre-trigger buffer, enter the desired total length in seconds, minutes or hours, and specify the required image frequency.
- **Post-event:** This function is the counterpart to the pre-trigger buffer described above and contains images from the time immediately after the trigger. Configure as for pre-event.
- **Prefix file name:** This name will be used for all the image files saved. If suffixes are also used, the file name will take the form <prefix>.<suffix>.<extension>
- **Additional suffix:** Add either a date/time suffix or, a sequence number - with or without a maximum value

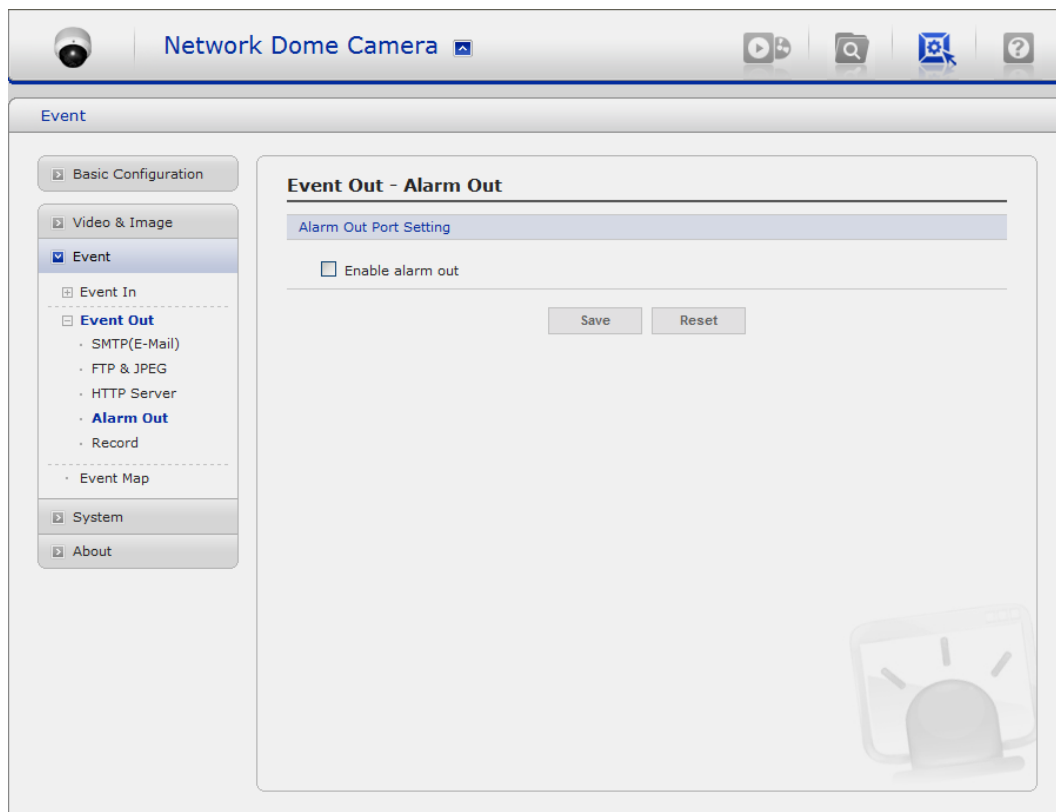
▼ HTTP Server

The screenshot shows the 'Event Out - HTTP Server' configuration window. On the left is a sidebar with a tree view containing 'Basic Configuration', 'Video & Image', 'Event' (selected), 'Event In', 'Event Out' (expanded), 'SMTP(E-Mail)', 'FTP & JPEG', 'HTTP Server' (highlighted), 'Alarm Out', 'Record', 'Event Map', 'System', and 'About'. The main area is titled 'Event Out - HTTP Server' and contains two sections: 'HTTP Server Setting' and 'HTTP Server Test'. In the 'HTTP Server Setting' section, there is a checkbox 'Enable HTTP server' which is currently unchecked. Below it are three input fields for 'URL', 'User name', and 'Password'. The 'HTTP Server Test' section has a 'Send message' input field and a 'Test' button. At the bottom of the main area are 'Save' and 'Reset' buttons. A faint watermark of a dome camera is visible in the bottom right corner of the configuration window.

When the VK2-VGAVFD detects an event, HTTP Server is used to receive uploaded image files and/or notification messages. Check the box to enable the service.

- **HTTP Server Setting**
 - **Name:** The name of the HTTP event server. Use a descriptive name.
 - **URL:** The network address to the server and the script that will handle the request.
For example: <http://192.168.12.244/cgi-bin/upload.cgi>
 - **User name/Password:** Provide your log-in information.
- **HTTP Server Test**
When the setup is complete, the connection can be tested by clicking the Test button.

▼ Alarm Out



When the VK2-VGA VFD detects an event, it can control external equipment connected to its alarm output port. Check the box to enable and then select either:

- **Enable:** When you select "**Enable alarm out**", the output will be activated for as long as the event is active.

▼ Record

The screenshot shows the 'Event Out - Record' configuration page in the Network Dome Camera web interface. The left sidebar contains a menu with 'Basic Configuration', 'Video & Image', 'Event', 'System', and 'About'. The 'Event' menu is expanded, showing 'Event In', 'Event Out', 'SMTP(E-Mail)', 'FTP & JPEG', 'HTTP Server', 'Alarm Out', 'Record', and 'Event Map'. The 'Record' option is selected. The main content area is titled 'Event Out - Record' and contains three sections: 'Record Setting', 'Format', and 'Device Information'. The 'Record Setting' section has checkboxes for 'Enable Record', 'Overwrite', and 'Continuous Record', all of which are checked. It also has a 'Stream Type' dropdown set to 'IMAGE', and input fields for 'Pre-event' (10) and 'Post-event' (0) with their respective ranges. The 'Format' section shows 'Device Status : Available' and a 'Format' button. The 'Device Information' section contains a table with SD card statistics.

Total	Used	Available	Used Percent
1.83GB	1.67GB	163.37MB	91.26%

At the bottom of the 'Device Information' section are 'Save' and 'Reset' buttons.

When the VK2-VGAVFD detects an event, it can record video stream in the Micro SD Memory. Check the box to enable the service.

- **Record Setting**

- **Overwrite:** Click checkbox to overwrite the SD card.
- **Continuous Record:** Click checkbox to record continuously regardless the schedule or event.
- **Stream Type:** You can select VIDEO or IMAGE.
 - * VIDEO: H.264 or MPEG-4 data
 - * IMAGE: MJPEG data
- **Pre-event:** Enter pre-event time value for SD pre-recording.
- **Post-event:** Enter post-event time value for SD post-recording.

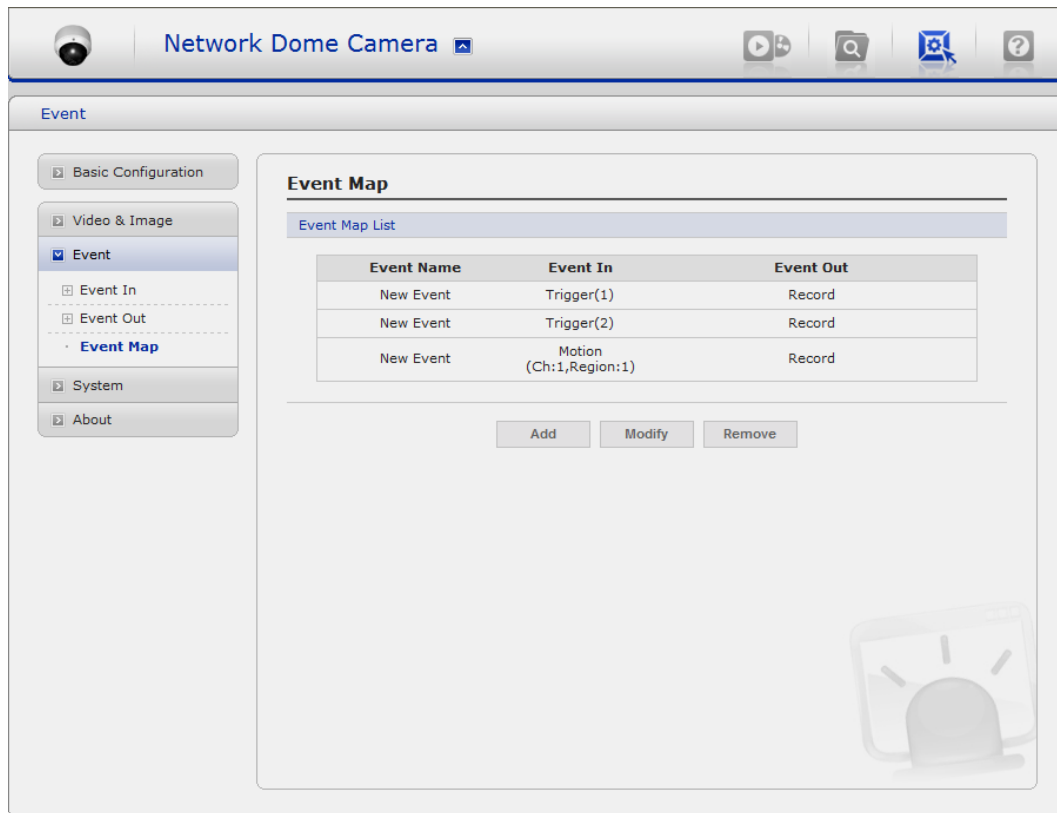
- **Format**

Click the Format button to format SD card.

- **Device Information**

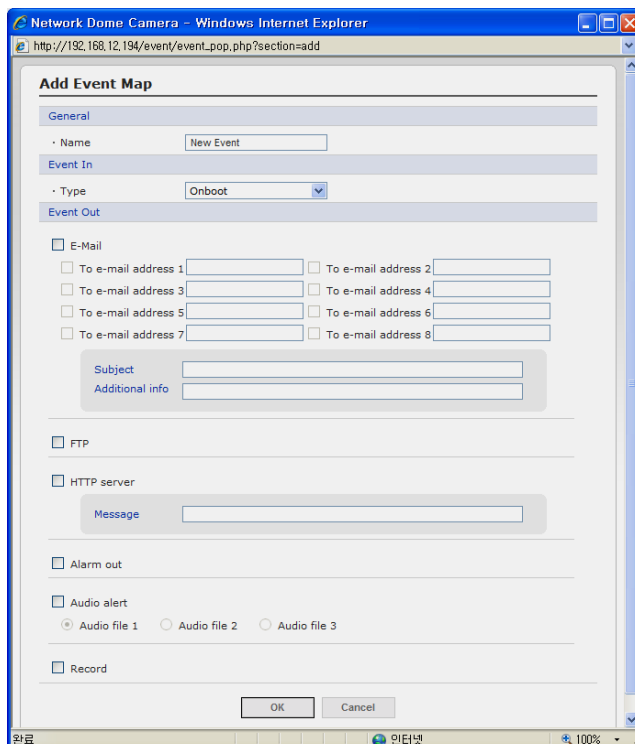
Show current SD card information.

3) Event Map



The event map allows you to change the settings and establish a schedule for each event trigger from the VK2-VGAVFD. You can register the event map up to max. 15.

Click Add button to make a new event map and you can see a popup window as below.

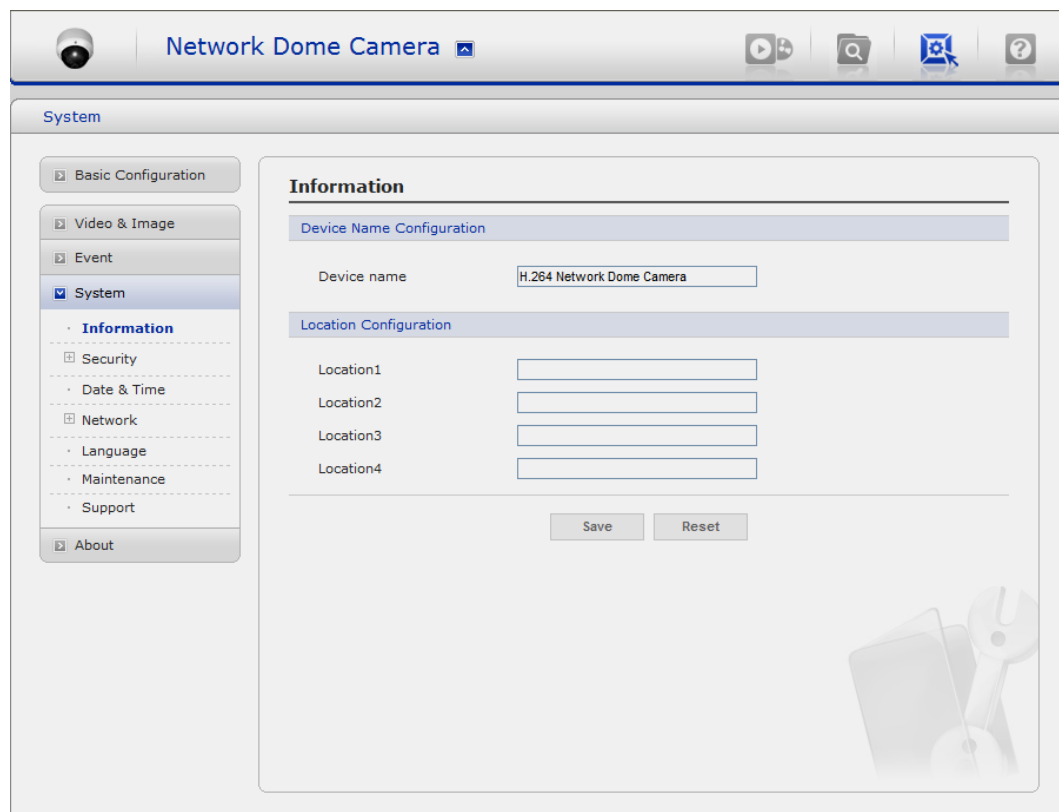


- **General**
Enter the name for a new event map.
- **Event In**
Select an event type in the drop down list.
- **Event Out**
 - **E-mail:** Select email addresses you want to send via email that an event has occurred.
 - **FTP:** Select checkbox beside FTP to record and saves images to an FTP server when an event has occurred.
 - **HTTP Server:** It sends notification messages to an HTTP server that listens for these. The destination server must first be configured on the Event In page. Enter a message you want to send.
 - **Record:** Select Record checkbox to record video stream when an event has occurred. The Record option must first be configured on the Event Out page.

3.5.4 System

1) Information

You can enter the system information. This page is very useful when you refer device information after installation.



The screenshot shows a web interface for a 'Network Dome Camera'. The top navigation bar includes a camera icon, the title 'Network Dome Camera', and icons for play, search, settings, and help. The main content area is titled 'System' and features a left-hand menu with options: Basic Configuration, Video & Image, Event, System (selected), Information (sub-selected), Security, Date & Time, Network, Language, Maintenance, Support, and About. The 'Information' section is divided into two parts: 'Device Name Configuration' with a text field containing 'H.264 Network Dome Camera', and 'Location Configuration' with four text fields labeled Location1, Location2, Location3, and Location4. At the bottom of the configuration area are 'Save' and 'Reset' buttons. A faint watermark of a camera and tools is visible in the bottom right corner.

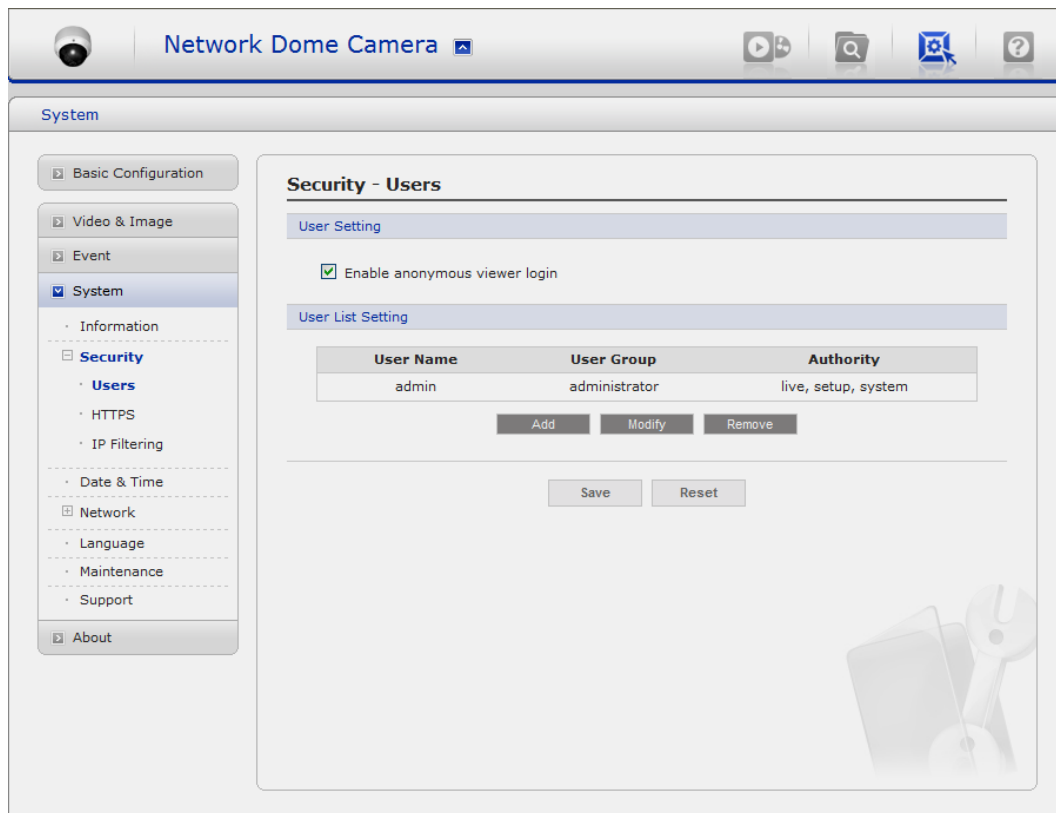
- **Device Name Configuration**
Enter the device name.

- **Location Configuration**

Enter the location information. You can enter that by four.

2) Security

▼ Users



User access control is enabled by default, when the administrator sets the root password on first access. New users are authorized with user names and passwords, or the administrator can choose to allow anonymous viewer login to the Live View page, as described below:

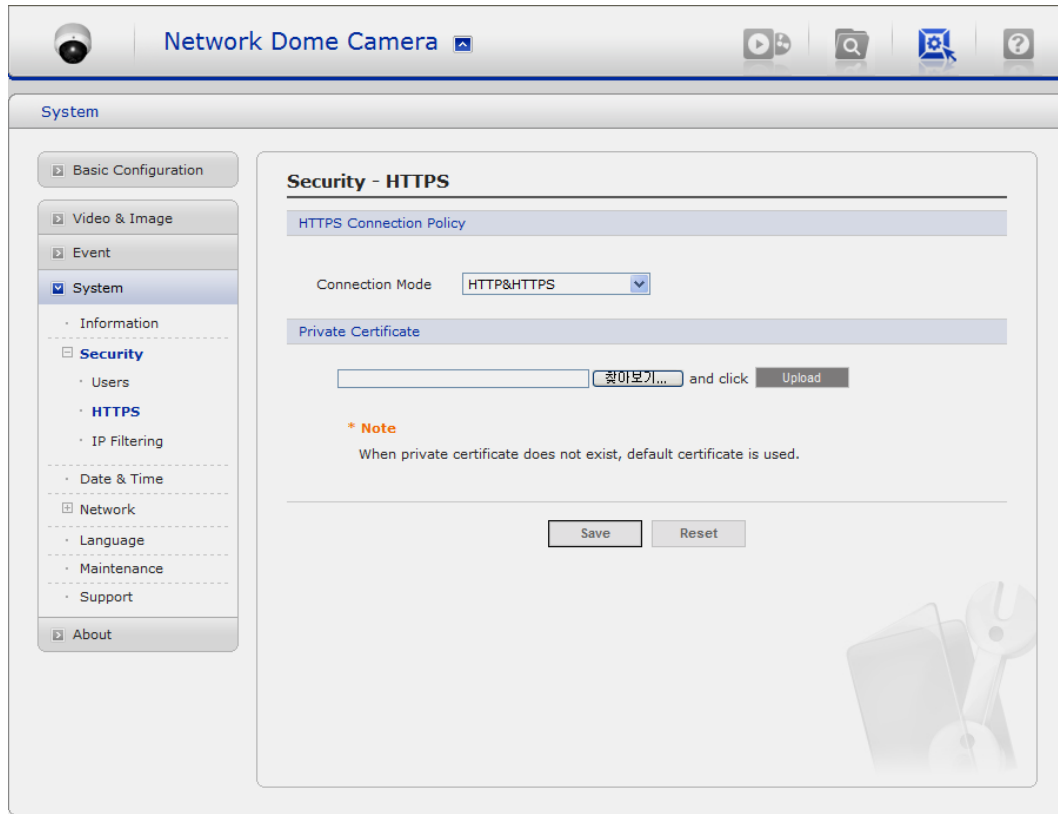
- **User Setting**

Check the box to enable anonymous viewer login to the VK2-VGAVFD without the user account. When using the user account, users have to try log-in at every access.

- **User List Setting**

This section shows a registered user account. Enter a user name and password to be added, and register them by pressing the Add button. You can see the pop-up window as below.

▼ HTTPS



For greater security, the VK2-VGAVFD can be configured to use HTTPS (Hypertext Transfer Protocol over SSL (Secure Socket Layer)). That is, all communication that would otherwise go via HTTP will instead go via an encrypted HTTPS connection.

- **HTTPS Connection Policy**

Choose the form of connection you wish to use from the drop-down list for the administrator, Operator and Viewer to enable HTTPS connection (set to HTTP by default).

- **HTTP**
- **HTTPS**
- **HTTP & HTTPS**

- **Upload Certificate**

To use HTTPS for communication with the VK2-VGAVFD, An official certificate issued by a CA (Certificate Authority) must be uploaded from your PC. Provide the path to the certificate directly, or use the **Browse** button to locate it. Then click the **Upload** button.

Please refer to the home page of your preferred CA for information on where to send the request. For more information, please see the online help.

▼ IP Filtering

The screenshot shows the 'Network Dome Camera' web interface. The left sidebar contains a menu with 'System' selected, which includes sub-items like 'Information', 'Security', 'Users', 'HTTPS', 'IP Filtering', 'Date & Time', 'Network', 'Language', 'Maintenance', 'Support', and 'About'. The main content area is titled 'Security - IP Filtering' and contains an 'IP Filtering Setting' section. This section has a checkbox for 'Enable IP filtering'. Below it is a table with columns: 'On/Off', 'Priority', 'Policy', 'Start IP', and 'End IP'. The table contains five rows, each with an 'On/Off' checkbox, a priority number (1-5), a policy dropdown set to 'ALLOW', and two IP address input fields (Start IP and End IP), all currently set to '0 . 0 . 0 . 0'. At the bottom of the table are 'Save' and 'Reset' buttons. A faint watermark of a camera and tools is visible in the bottom right corner of the interface.

On/Off	Priority	Policy	Start IP	End IP
<input type="checkbox"/>	1	ALLOW	0 . 0 . 0 . 0	0 . 0 . 0 . 0
<input type="checkbox"/>	2	ALLOW	0 . 0 . 0 . 0	0 . 0 . 0 . 0
<input type="checkbox"/>	3	ALLOW	0 . 0 . 0 . 0	0 . 0 . 0 . 0
<input type="checkbox"/>	4	ALLOW	0 . 0 . 0 . 0	0 . 0 . 0 . 0
<input type="checkbox"/>	5	ALLOW	0 . 0 . 0 . 0	0 . 0 . 0 . 0

Checking the **Enable IP address filtering** box enables the IP address filtering function. Up to 256 IP address entries may be specified (a single entry can contain multiple IP addresses). Click the **Add** button to add new filtered addresses.

When the IP address filter is enabled, addresses added to the list are set as allowed **or** denied addresses. All other IP addresses not in this list will then be allowed or denied access accordingly, that is, if the addresses in the list are allowed, then all others are denied access, and vice versa. See also the online help for more information.

Note that users from IP addresses that will be allowed must also be registered with the appropriate access rights (Guest, Operator or Administrator). This is done from Setup> System>Security>Users.

3) Date & Time

The screenshot shows the 'Date & Time' configuration page of a Network Dome Camera. The sidebar on the left lists various system settings, with 'System' selected. The main panel is divided into three sections: 'Current Server Time' showing the current date and time, 'New Server Time' for configuring the time zone and mode, and 'Date & Time Format' for selecting the display format. The 'Time mode' section has three radio buttons: 'Synchronize with computer time' (selected), 'Synchronize with NTP server', and 'Set manually'. The 'Synchronize with NTP server' option includes fields for the NTP server and interval. The 'Date & Time Format' section has dropdown menus for date and time formats. 'Save' and 'Reset' buttons are at the bottom.

- **Current Server Time**

It displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

- **New Server Time**

Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight savings time, select "Automatically adjustment for daylight saving time changes".

From the Time Mode section, select the preferred method to use for setting the time:

- **Synchronize with computer time:** sets the time from the clock on your computer.
- **Synchronize with NTP Server:** the video encoder will obtain the time from an NTP server every 60 minutes.
- **Set manually:** this option allows you to manually set the time and date.

Note: Note that if using a host name for the NTP server, a DNS server must be configured under TCP/IP settings.

4) Network

The screenshot displays the 'Network - Basic' configuration page of a 'Network Dome Camera'. The interface includes a top navigation bar with a camera icon, the title 'Network Dome Camera', and several utility icons. A left sidebar lists various system settings, with 'System' selected and expanded to show 'Network' as the active category. The main content area is divided into several sections for network configuration:

- IP Address Configuration:** Features two radio buttons. The first, 'Obtain IP address via DHCP', is unselected. The second, 'Use the following IP address:', is selected. Below it are three input fields: 'IP address' (192 . 168 . 12 . 210), 'Subnet mask' (255 . 255 . 255 . 0), and 'Default router' (192 . 168 . 12 . 20).
- IPv6 Address Configuration:** Includes an unchecked checkbox for 'Enable IPv6' and a text field for 'IPv6 address' containing 'fe80::aede:48ff:fedd:832/64'.
- DNS Configuration:** Similar to the IP section, it has 'Obtain DNS server via DHCP' (unselected) and 'Use the following DNS server address:' (selected). It includes input fields for 'Domain name' (empty), 'Primary DNS server' (168 . 126 . 63 . 1), and 'Secondary DNS server' (0 . 0 . 0 . 0).
- Host Name Configuration:** Contains a single input field for 'Host Name' with the value 'HPCG-C1AAW4N10ACDE48D0'.
- Services:** Lists three ports: 'HTTP port' (80), 'HTTPS port' (443), and 'RTSP port' (554).
- ARP/Ping setting:** Features a checked checkbox for 'Enable ARP/Ping setting'.

At the bottom right of the configuration area, there are two buttons: 'Save' and 'Reset'.

Setting in regard to network can be executed. Settings for IP, DNS, Host Name, Port, and ARP/Ping can be established, along with setting for DDNS, uPnP, QoS, and SNMP.

▼ Basic

● IP Address Configuration:

- **Obtain IP address via DHCP:** Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.
- **Use the following IP address:** To use a static IP address for the VK2-VGAVFD, check the radio button and then make the following settings:
 - * **IP address:** Specify a unique IP address for your VK2-VGAVFD.
 - * **Subnet mask:** Specify the mask for the subnet the VK2-VGAVFD is located on.
 - * **Default router:** Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

● IPv6 Address Configuration

Check this box to enable IPv6. Other settings for IPv6 are configured in the network router.

● DNS Configuration

DNS (Domain Name Service) provides the translation of host names to IP addresses on your network.

- **Obtain DNS Server via DHCP:** Automatically use the DNS server settings provided by the DHCP server. Click the View button to see the current settings.
- Use the following DNS server address to enter the desired DNS server by specifying the following:
 - * **Domain name:** enter the domain(s) to search for the host name used by the Network Camera. Multiple domains can be separated by semicolons (;). The host name is always the first part of a Fully Qualified Domain Name, for example, myserver is the host name in the Fully Qualified Domain Name [myserver.mycompany.com](#) where mycompany.com is the Domain name.
 - * **DNS servers:** enter the IP addresses of the primary and secondary DNS servers.

● Host Name Configuration

- **Host Name** – enter the host name to be used as device information in the client software or SmartManager.

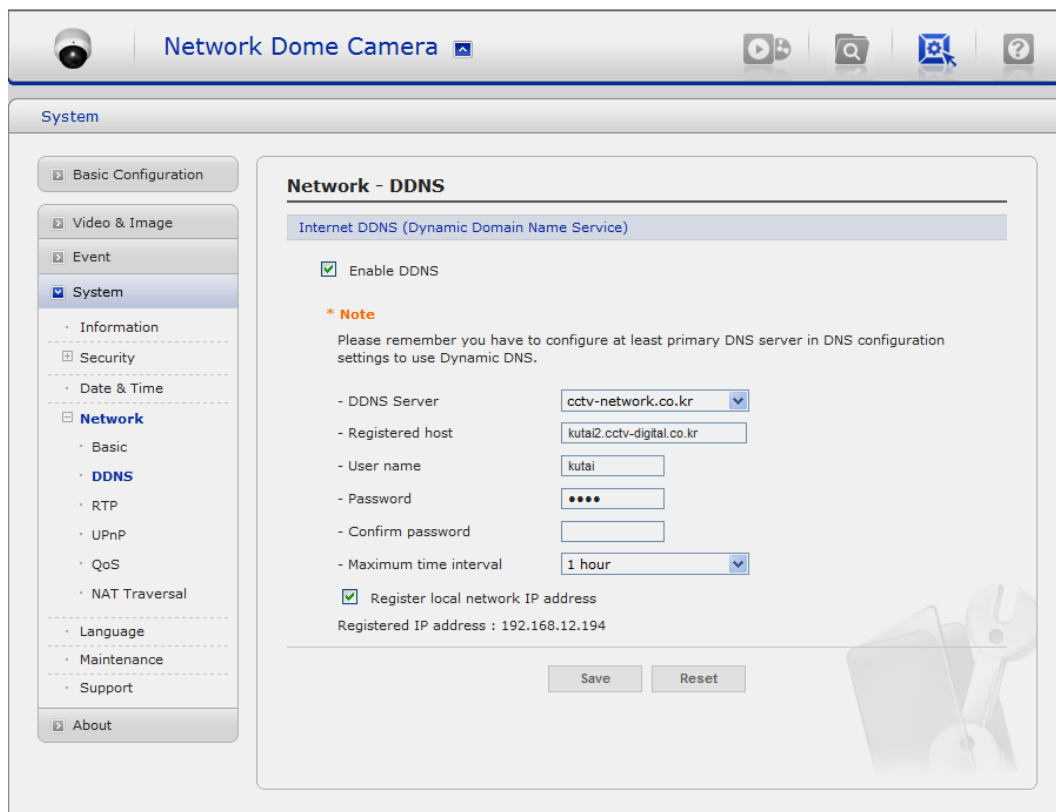
● Services

- **HTTP port:** Enter a port to receive a service through the HTTP. Default Port Number is '80'.
- **RTSP port:** Enter a port to receive a service through the RTSP. Default Port Number is '7070'.
- **PTZ port:** Enter a port to control the Pan/Tilt/Zoom. Default Port Number is '7000'.

● ARP/Ping Setting

- Enable ARP/Ping setting of IP address - The IP address can be set using the ARP/Ping method, which associates the unit's MAC address with an IP address. Check this box to enable the service.
Leave disabled to prevent unintentional resetting of the IP address.

▼ DDNS



The screenshot shows the 'Network Dome Camera' web interface. On the left is a sidebar menu with categories: System (selected), Video & Image, Event, and About. Under 'System', there are sub-items: Information, Security, Date & Time, Network (selected), Basic, DDNS, RTP, UPnP, QoS, NAT Traversal, Language, Maintenance, and Support. The main content area is titled 'Network - DDNS' and contains the 'Internet DDNS (Dynamic Domain Name Service)' configuration. It includes a checkbox for 'Enable DDNS' which is checked. A note states: 'Please remember you have to configure at least primary DNS server in DNS configuration settings to use Dynamic DNS.' Below this are fields for: DDNS Server (dropdown menu showing 'cctv-network.co.kr'), Registered host (text box with 'kuta2.cctv-digital.co.kr'), User name (text box with 'kurai'), Password (text box with masked characters '....'), Confirm password (empty text box), and Maximum time interval (dropdown menu showing '1 hour'). There is also a checkbox for 'Register local network IP address' which is checked, and it displays 'Registered IP address : 192.168.12.194'. At the bottom right are 'Save' and 'Reset' buttons.

- **Internet DDNS(Dynamic Domain Name Service)**

When using the high-speed Internet with the telephone or cable network, users can operate the VK2-VGAVFD even on the floating IP environment in which IPs are changed at every access.

Users should receive an account and password by visiting a DDNS service like

<http://www.dyndns.com/>, or <http://www.cctv-network.co.kr/>.

- **Enable DDNS:** Check to get DDNS service to be available.
- * **DDNS Server:** Select the DDNS server.
- * **Registered host:** Enter an address of the DDNS server.
- * **Username:** Enter an ID to access to the DDNS server.
- * **Password:** Enter a password to be used for accessing the DDNS server.
- * **Confirm:** Enter a password again to confirm it.
- * **Maximum time interval:** Set a time interval to synchronize with the DDNS server. Select an item in the interval drop-down list.
- * **Register local network IP address:** Register a Network Video Server IP address to the DDNS server

▼ RTP

The screenshot shows the 'Network Dome Camera' web interface. The left sidebar contains a menu with 'System' selected, which includes sub-items like 'Information', 'Security', 'Date & Time', 'Network' (with 'RTP' highlighted), 'UPnP', 'QoS', 'NAT Traversal', 'Language', 'Maintenance', and 'Support'. The main content area is titled 'Network - RTP' and contains two sections: 'Port Range' and 'Multicast'. The 'Port Range' section has 'Start port' set to 30000 and 'End port' set to 30040. The 'Multicast' section has 'Enable multicast' unchecked, 'Multicast destination IP' set to 231.1.128.20, 'RTP port' set to 40000, and 'RTP TTL' set to 1. 'Save' and 'Reset' buttons are at the bottom.

Have a setting for sending and receiving an audio or video on a real-time basis. These settings are the IP address, port number, and Time-To-Live value to use for the media stream(s) in multicast H.264 format. Only certain IP addresses and port numbers should be used for multicast streams. For more information, please see the online help.

- **Port Range**

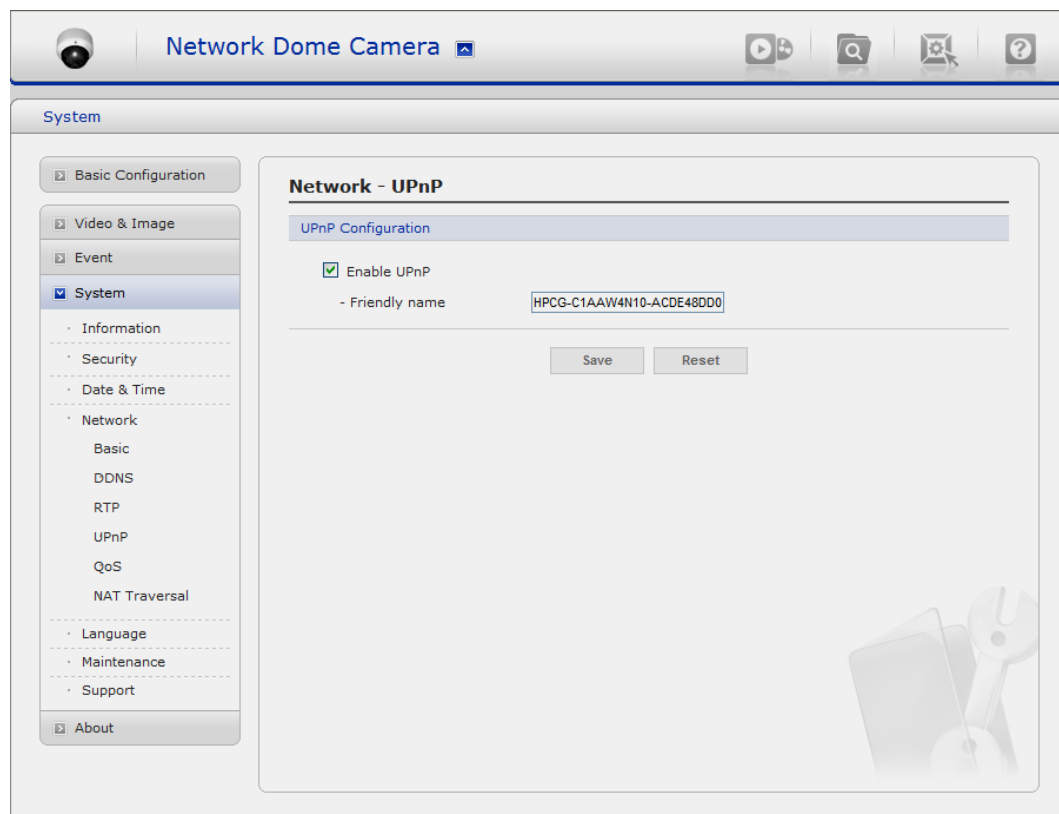
- **Start port:** Enter a value between 1024 and 65532

- **Multicast**

This function is for sending Video and Audio to Multicast group.

- **Enable Multicast:** Check the box to enable multicast operation.
- **Multicast destination IP:** Enter an IP between 224.0.0.0 and 239.255.255.255. Although it is empty, an IP will be entered automatically.
- **RTP port:** Enter a value between 1024 and 65532.
- **RTP TTL:** Enter a value between 1 and 255. If a network status is smooth, enter a lower value. On the other hand, if a network status is poor, enter a higher value. When there are many VK2-VGAVFDs or users, a higher value may cause a heavy load to the network. For a detailed setting, please consult with a network manager.

▼ UPnP



The VK2-VGAVFD includes support for UPnP™. UPnP™ is enabled by default, and the VK2-VGAVFD then is automatically detected by operating systems and clients that support this protocol.

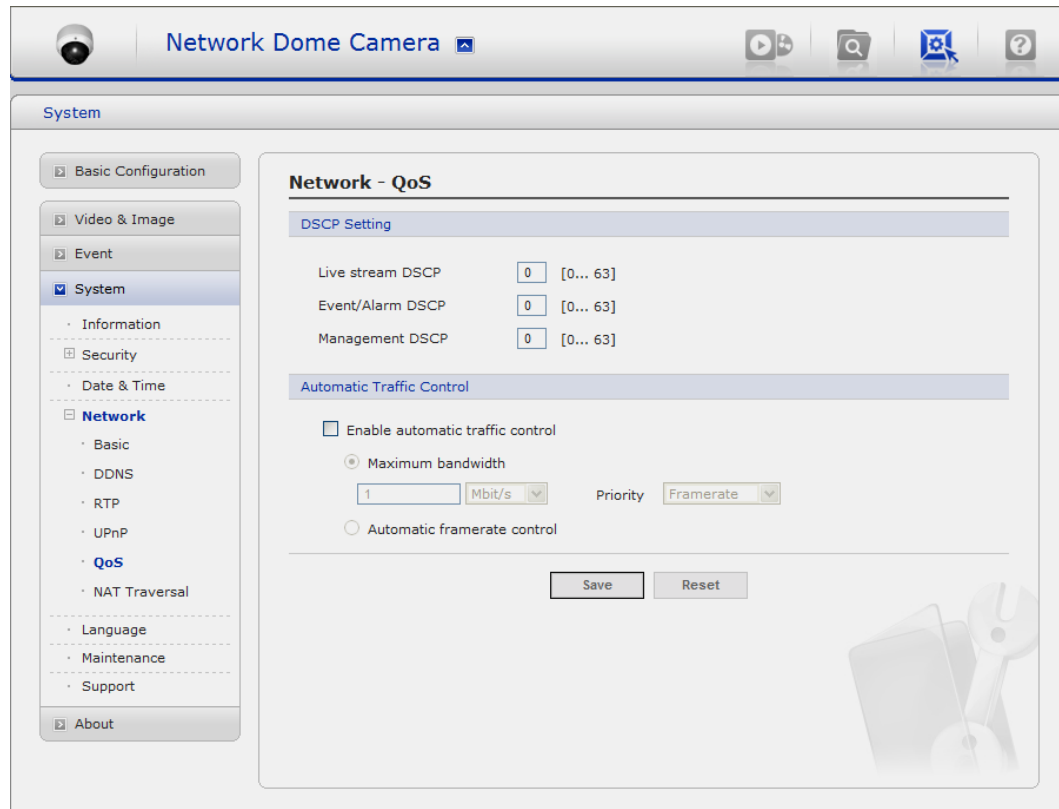
Note: UPnP™ must be installed on your workstation if running Windows XP. To do this, open the Control Panel from the Start Menu and select Add/Remove Programs. Select Add/Remove Windows Components and open the Networking Services section. Click Details and then select UPnP™ as the service to add.

▼ QoS

Quality of Service (QoS) provides the means to guarantee a certain level of a specified resource to selected traffic on a network. Quality can be defined as a maintained level of bandwidth, low latency, and no packet losses.

The main benefits of a QoS-aware network are:

- The ability to prioritize traffic and thus allow critical flows to be served before flows with lesser priority.
- Greater reliability in the network, thanks to the control of the amount of bandwidth an application may use, and thus control over bandwidth races between applications.



• DSCP Settings

For each type of network traffic supported by your network video product, enter a DSCP (Differentiated Services Code Point) value. This value is used to mark the traffic's IP header. When the marked traffic reaches a network router or switch, the DSCP value in the IP header tell the router or switch which type of treatment to apply to this type of traffic, for example, how much bandwidth to reserve for it. Note that DSCP values can be entered in decimal or hex form, but saved values are always shown in decimal.

The following types of traffic are marked:

- **Live Stream DSCP:**
- **Event/Alarm DSCP:**
- **Management DSCP:**

- **Auto Traffic Control**

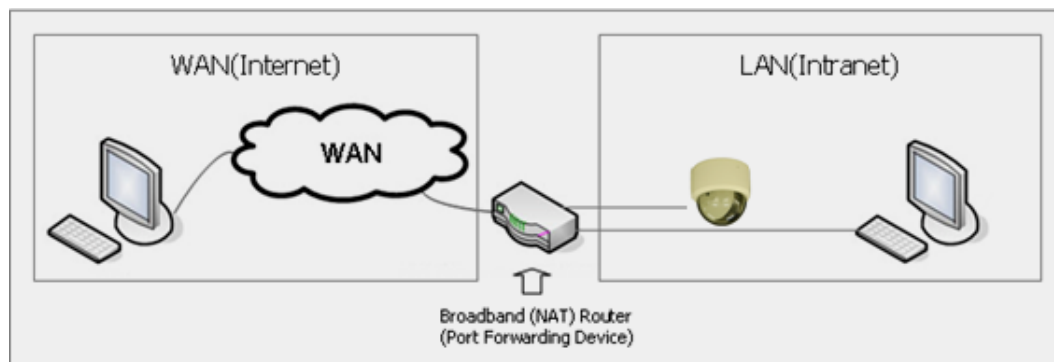
Set a limitation on user network resources by designating the maximum bandwidth.

- Maximum bandwidth - In case of sharing other network programs or equipment, it is possible to set a limitation on the maximum bandwidth in the unit of Mbit/s or kbit/s.
- Auto frame rate - Selected if not influenced by a network-related program or equipment without a limitation on the network bandwidth.

▼ **NAT Traversal**

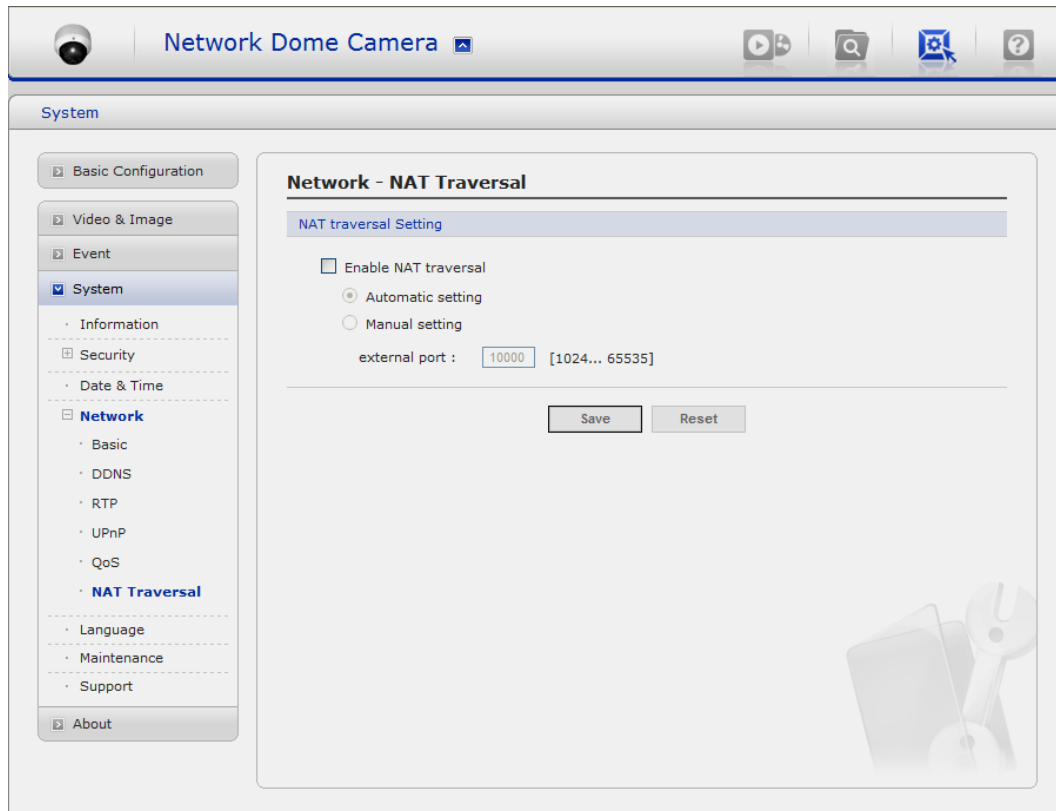
A broadband router allows devices on a private network (LAN) to share a single connection to the Internet. This is done by forwarding network traffic from the private network to the "outside", that is, the Internet. Security on the private network (LAN) is increased since most broadband routers are pre-configured to stop attempts to access the private network (LAN) from the public network/Internet.

Use **NAT traversal** when your VK2-VGAVFDs are located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router is forwarded to the VK2-VGAVFD.



Notes:

- For NAT traversal to work, this must be supported by the broadband router.
- The broadband router has many different names: "NAT router", "Network router", "Internet Gateway", "Broadband sharing device" or "Home firewall" but the essential purpose of the device is the same.



- **NAT traversal Settings**

- **Enable** - when enabled, the network transmitters attempt to configure port mapping in a NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the VK2-VGAVFD (see System>Network>UPnP).
- * **automatic setting:** The VK2-VGAVFD automatically search for NAT routers on your network.
- * **manual setting:** Select this option to manually select a NAT router and enter the external port number for the router in the field provided.

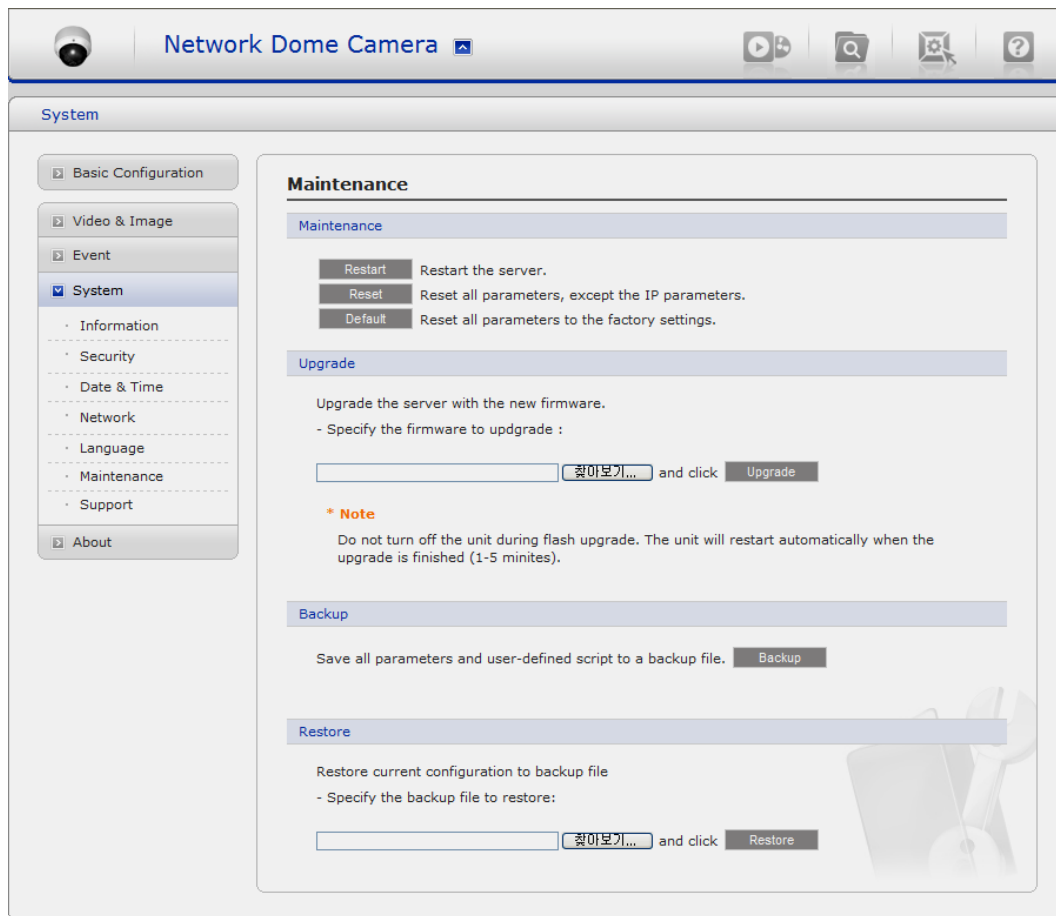
Notes:

- If you attempt to manually enter a port that is already in use, an alert message will be displayed.
- When the port is selected automatically it is displayed in this field. To change this enter a new port number and click Save.

5) Language

It will be able to select a user language. The type of language it will be able to select is the English, the French, the German, the Spanish and the Italian.

6) Maintenance



- **Maintenance Server**

- **Restart:** The unit is restarted without changing any of the settings. Use this method if the unit is not behaving as expected.
- **Restore:** The unit is restarted and most current settings are reset to factory default values. The settings that are not affected are:
 - * the boot protocol (DHCP or static)
 - * the static IP address
 - * the default router
 - * the subnet mask
 - * the system time
- **Default:** The default button should be used with caution. Pressing this will return all of the VK2-VGAVFD's settings to the factory default values (including the IP address).

- **Update Server**

Carry out the upgrade by importing an upgrade file and pressing the Upgrade button. During the upgrade, do not turn off the power of the VK2-VGAVFD. And try an access again after waiting five minutes or longer.

- **Backup**

Save a setting value that users enter to the VK2-VGAVFD, to a user PC.

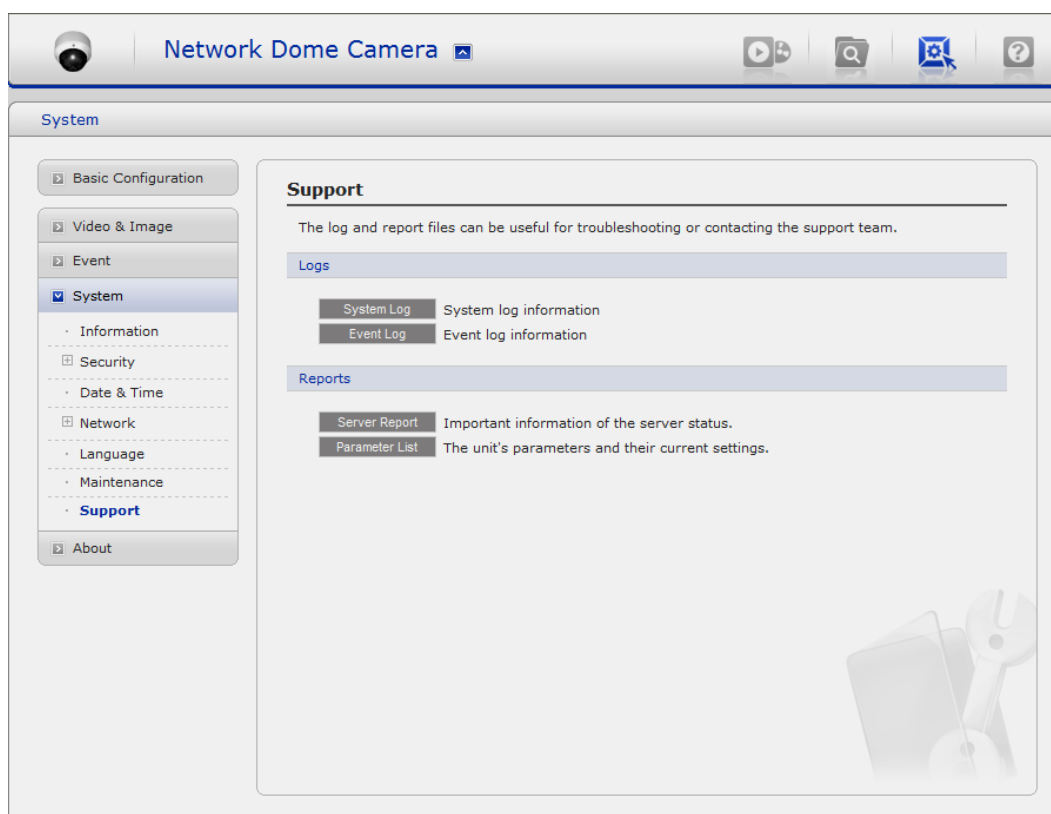
- **Restore**

Import and apply a setting value saved to a user PC.

Note: Backup and Restore can only be used on the same unit running the same firmware. This feature is not intended for multi-configurations or for firmware upgrades.

7) Support

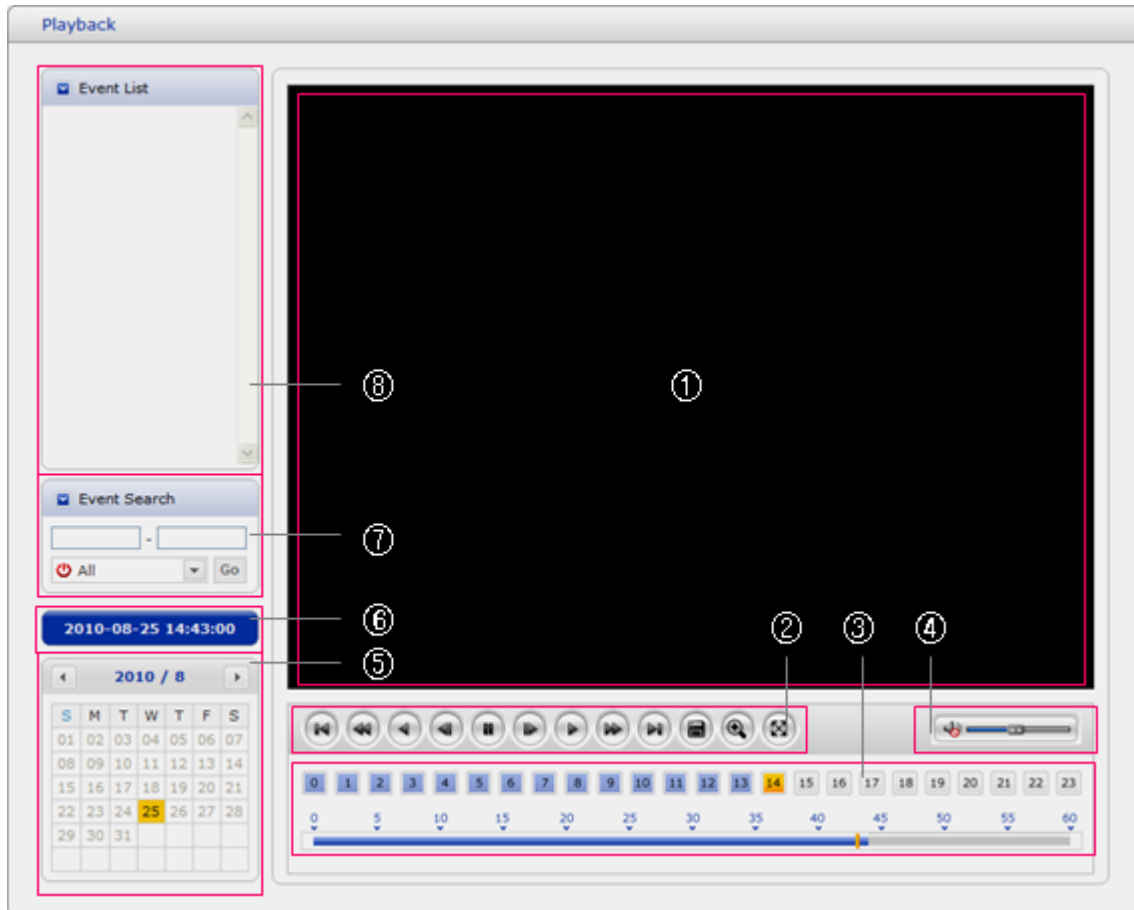
The support page provides valuable information on troubleshooting and contact information, should you require technical assistance.



- **Logs**
The VK2-VGAVFD support system log information. Click the System Log button to get the log data.
- **Update Server**
 - **Server Report:** Click the Server Report button to get the important information about the server's status and should always be included when requesting support.
 - **Parameter List:** Click the Parameter List button to see the unit's parameters and their current settings.

3.6 Playback from SD Card

The Playback window contains a list of recordings made to the memory card. It shows each recording's start time, length, the event type used to start the recording, calendar and time slice bar indicates if the recording is existed or not.










The description of playback window follows.






(1) Video Screen

You can see the video screen when playing the video clip in the Micro SD memory

(2) Playback Buttons

To view a recording data in the SD local storage, select it from the list and click the Playback buttons.

-  Go to the first: go to the beginning of the video clip.
-  Fast backward play:
-  Backward play: play backward of the video clip.
-  Step backward play: go back one frame of the video clip.
-  Pause: pause playback of the video clip.
-  Step forward play: go forward one frame of the video clip.
-  Forward Play: play forward the video clip.

-  Fast forward play: play fast forward of the video clip.
-  Step forward play: go forward one frame of the video clip.
-  Clip copy: copy the video clip.
-  Zoom In: zoom in the video clip
-  Full Screen: display full screen of the video.

(3) Time Chart

Display an hour-based search screen for the chosen date. If there is recording data, a blue section will be displayed on a 24-hour basis.

(4) Speaker Control Bar

Use this scale to control the volume of the speakers.

(5) Search Calendar

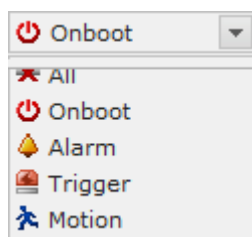
Search results from the SD local storage in the VK2-VGAVFD connected are displayed monthly. If there is a recorded data for a particular date, a blue square on the date will be displayed.

(6) Play Time

Displays time of the video playing.

(7) Event Search Window

Select a search option in the drop-down list and click GO button. You can also enter the time period for searching. If you click Start Date or End Date zone, displays Search Calendar.

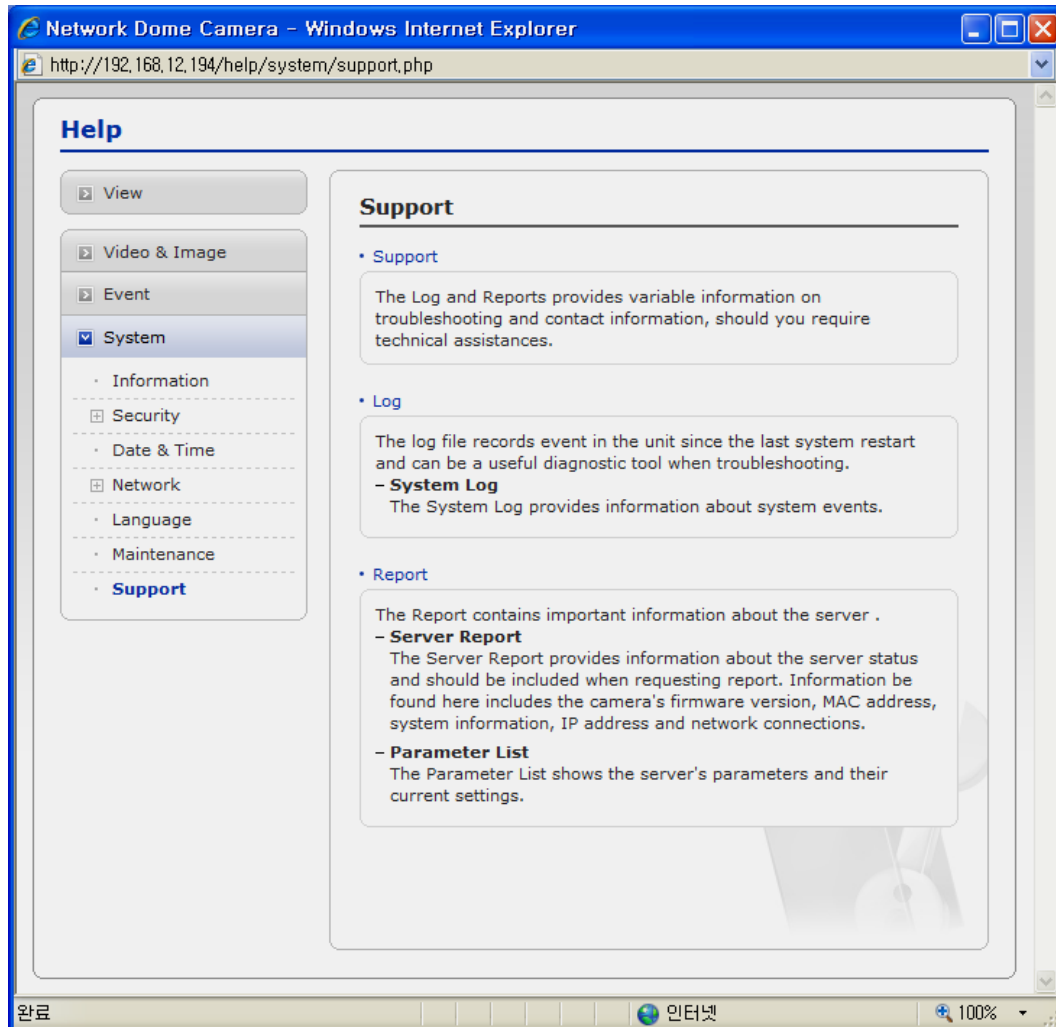


(8) Event List Window

Event List displays the event(s) that were recorded in the SD local storage. Select a list and click the play button. The video clip will be played.

3.7 Help

The Help information window will be provided as a popup window so that users can open and read it without a need for log-in. It will offer a description on setting and Help page by which users can manipulate the VK2-VGAVFD without a reference to the manual.



3.8 Resetting to the factory default settings

To reset the VK2-VGAVFD to the original factory settings, go to the Setup>System> Maintenance web page (described in "3.6.6 System > Maintenance") or use the control button on the VK2-VGAVFD, as described below:

- **Using the Reset Button**

Follow the instructions below to reset the VK2-VGAVFD to the factory default settings using the Reset Button.

1. Switch off the VK2-VGAVFD by disconnecting the power adapter.
2. Open the lens cover.
3. Press and hold the Control Button (SW1) on the board with your finger while reconnecting the power.
4. Keep the Control button (SW1) pressed during about 2 seconds.
5. Release the Control Button (SW1).
6. The VK2-VGAVFD resets to factory defaults and restarts after completing the factory reset.
7. Close the lens cover.

CAUTION: When performing a Factory Reset, you will lose any settings you have saved.

4. Appendix

4.1 Troubleshooting

Troubleshooting if problems occur, verify the installation of the VK2-VGAVFD with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

Problems/Symptoms	Possible Causes or Corrective Actions
The camera cannot be accessed by some clients.	If using a proxy server, try disabling the proxy setting in your browser. Check all cabling and connectors.
The camera works locally, but not externally.	Check if there are firewall settings that need to be adjusted. Check if there are router settings that need to be configured.
Poor or intermittent network connection.	If using a network switch, check that the port on that device uses the same setting for the network connection type (speed/duplex).
The camera cannot be accessed via a host name.	Check that the host name and DNS server settings are correct.
Not possible to log in.	When HTTPS is enabled, ensure that the correct protocol (HTTP or HTTPS) is used. When attempting to log in, you may need to manually type in http or https in the browser's address bar.
No image using Refresh and/or slow updating of images.	If images are very complex, try limiting the number of clients accessing the camera.
Images only shown in black & white.	Check the Video & Image setting.
Blurred images.	Refocus the camera.
Poor image quality.	Increased lighting can often improve image quality. Check that there is sufficient lighting at the monitored location. Check all image and lighting settings.
Rolling dark bands or flickering in image.	Try adjusting the Exposure Control setting under AE and AWB part.
H.264 not displayed in the client.	Check that the correct network interface is selected in the Video & Image/Stream.
Multicast H.264 not displayed in the client.	Check with your network administrator that the multicast addresses used by the camera are valid for your network. Check that the Enable multicast checkbox are enabled in the System/Network/RTP tab. Checks with your network administrator to see if there is a firewall preventing viewing.
Multicast H.264 only accessible by local clients.	Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL value may need to be increased.
Color saturation is different in H.264 and Motion JPEG.	Modify the settings for your graphics adapter. Please see the adapter's documentation for more information.
Poor audio quality.	Too many users/clients connected to the camera may affect the sound quality adversely. Try limiting the number of clients allowed to connect.
Distorted audio.	Check that the correct Audio Input source is selected. Select Microphone for a connected external microphone. Select Line for a connected line in source.

4.2 Preventive Maintenance

Preventive maintenance allows detection and correction of minor that faults before they become serious and cause equipment failure.

Every three-month, perform the following maintenance.

1. Inspect all connection cables for deterioration or other damage.
2. Clean components with a clean damp cloth.
3. Verify that all the mounting hardware is secure.

4.3 Product Specification

Main Item		Specification
C A M E R A	Image sensor	1/4" Progressive scan RGB VGA CMOS
	Active Array	640(H) x 480(V)
	Lens	Varifocal 2.8mm ~ 12mm, F1.4, DC IRIS
	Angle of View	2.8mm – 94.6°(H) / 12mm – 23.7°(H)
	Camera Angle Adjustment	Pan: 360°
		Tilt: 180°
		Rotation: 360°
	Min. illumination	1.0 Lux @ F1.4 (Sense-Up: Off)
	Shutter Speed	1/20,000 ~ 1/30
N E T W O R K	Video Compression	Motion JPEG MPEG-4 Part2 H.264 (MPEG-4 Part 10) Profiles: H.264 MP and BP, MPEG-4 ASP and SP
	Video Resolutions	160x120 ~ 640x480
	Frame Rate	25fps @ all resolutions
	Video Streaming	Simultaneously H.264(or MPEG-4) and MJPEG Controllable Frame Rate and Bandwidth VBR/CBR H.264 and MPEG-4
	Protocol	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, QoS, FTP, SNMP, uPnP, RTP, RTSP, RTCP, DHCP, ARP
	Security	Multi-user authority, HTTPS, IP Filtering, Privacy Zone
	Max. Connection	10
	API Programming Interface	API Supported, Open Platform Compatible: ONVIF
	Alarm Triggers	Motion Detection, External Input, Manual Trigger
	Alarm Events	File upload via FTP and HTTP Notification via E-mail, HTTP and TCP External Output activation Audio alert activation
	Video Buffering	Pre and Post Alarm
	Motion Detection	Yes, max. 8 programmable zone
	Network Time Synchronization	Yes
	SD Recording	Yes, Continuous/Schedule/Event
	Software Reset	Yes
	Factory Reset	Yes, Button/Web browser
	Auto Recovery	Yes
	Installation Tool	Yes, SmartManager
	Upgrade	Yes, Web browser/SmartManager
G E N E R A L	Alarm Input	Terminal, 1 TTL input
	Alarm Output	Terminal, 1 open collector(max. 24V DC, max. 100mA)
	Ethernet	RJ-45 10BASE-T/100BASE-TX
	Operating Temperature	0°C ~ 45°C
	Operation Humidity	0~90% (non-condensing)
	Power Consumption	DC12V max.4.0watt, Power over Ethernet IEEE 802.3af Class2/3
	External Dimension (Φ x V)	118.4 x 105 [Bubble Diameter Φ]
	Unit Weight	g
	Approval	FCC, CE

System Requirement for Web Browser

Operating System: Microsoft Windows 98, Microsoft Windows ME, Microsoft Windows 2000, Microsoft Windows XP, or Microsoft Windows Vista

CPU: Over Pentium IV 2.4Ghz, 512MB RAM, 10GB free disk or higher

VGA: AGP, Video RAM 32MB or higher (1024x768, 24bpp or higher)

Subject to change without notice

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